

Final Report

Royal Commission on
Canada's Economic Prospects

November 1957

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ROYAL COMMISSION
ON
CANADA'S ECONOMIC PROSPECTS

FINAL REPORT

NOVEMBER, 1957


FINAL REPORT

To His Excellency the Governor General in Council,

MAY IT PLEASE YOUR EXCELLENCY,

We, the Commissioners, appointed as a Royal Commission in accordance with the terms of an Order in Council dated 17th June, 1955, to inquire into and report upon the long-term prospects of the Canadian economy, that is to say upon the probable economic development of Canada and the problems to which such development appears likely to give rise:

Beg to Submit to Your Excellency the Following Final Report.



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INTRODUCTION: THE PROSPECTS BEFORE US

WHAT WILL be Canada's economic potentialities over the next twenty-five years and what must we do if they are to be fully realized? Essentially, those are the questions we have been asked to consider and to which answers are suggested in this report. It will be seen that our inquiry has involved making forecasts of future economic growth, identifying and analyzing the problems to which it is likely to give rise, and offering suggestions as to how they might be met. In the opening chapters of the report the background is sketched in against which Canadian economic growth will take place — the background provided by the world environment, by our relations with the United States, by the changing nature of international trade and by our recent economic development. The next group of chapters contains a discussion of population growth followed by a number of chapters outlining the probable future growth of particular industries or sectors. The following chapters deal with broad aggregates, consideration being given first to productivity and estimated output, and then to estimates designed to illustrate probable changes in the structure of the economy. Separate chapters follow on the supply of capital and foreign investment and on some special regional problems in the Atlantic Provinces and the North. In the final chapter we discuss the role of government policy both in maintaining economic stability and in promoting economic growth. The purpose of this introduction is to indicate the spirit in which we have approached our task, some of the methods we have used in going about it and a number of our broad conclusions.

The Hazards, Uses and Methods of Forecasting

At the very outset a word of warning is necessary. Fortune-telling has never been held in high repute in the community; and it is as hazardous when carried out under the most respectable auspices as when practised in a back street and in a manner liable to attract the attention of the police. We flatter ourselves that with the aid of a large and able staff we have been at some pains to try to discipline the forecasts we have been asked to make and to give them some scientific quality. We have examined economic experience in Canada, and to a lesser extent in other countries, over the last two or three decades to discover trends that might be projected into the future to give some idea of what the next quarter century might hold for Canadians. We have also borne in mind the comparative

stability of the ratios between some of the grand economic variables that will be changing over the years that we have to survey; and we have had constructed for us some models or orreries in which these slowly changing ratios might be seen to hold together the moving planets of the economic universe. But we should not like the reader to be deceived by any occasional impression of assurance or coherence that he may receive from these pages. We are well aware that we have not found it possible to compose our forecasts into complete consistency. We are even more conscious that the degree of certainty and consistency that our forecasts may from time to time suggest can be misleading. The fact is that a four-dimensional space-time continuum is a very slithery medium in which to plot the paths of even a few economic stars of the largest magnitude. The trend lines that we have projected into the future have had to be bent this way and that, and we know that guesses and intuitions have as often swayed our hand as any clear analysis or any clear apprehension of coming economic developments. The probability is therefore overwhelming that the future will not be obliging enough to conform to what we have predicted.

For all that, we have not been abashed by the task we have been given nor disposed to underestimate its importance. Decisions are constantly being made by governments and individuals, by businesses and trade unions, that involve forecasts of the economic future. Sometimes these forecasts are quite unconscious. More often, perhaps, they are untested, unco-ordinated or based on inadequate knowledge of the facts. No doubt the gaps and errors in our own appreciation of Canada's economic future will be only too evident. But we have at least received assistance on a massive scale to prevent us from falling into ignorant or unexamined conclusions. We have already mentioned the indispensable help that we have received from our staff, which has been assembled from government departments, from universities, from international organizations, from business and from organized labour. Canadian universities in particular have made considerable sacrifices to lend us some of their best younger economists. In addition, business institutions and trade unions, as well as government departments, have been generous in agreeing to prepare studies at our request. Moreover, we have received briefs from no fewer than 330 organizations and individuals; and many of these submissions involved painstaking and imaginative effort on the part of their authors to share with us their views of what might be expected in the next few decades. From the acknowledgments that appear in an appendix to this volume it will be seen that the assistance we have received would warrant the claim that this has been a national undertaking. It is chiefly because our own views have been broadened and corrected from so many sources that we have not been overcome by diffidence. At the very least, it can be said that, just as any decision is often better than none, so any explicit forecast is better than one that is taken for granted. It provokes

thought. It challenges opposition. It stimulates other attempts to penetrate the future. But we would be failing in due gratitude to those who have given us the advantage of their knowledge and experience if we were to rest our case so modestly. We know that our forecasts will be proved mistaken in detail, and no doubt in more than that. We also know that the discussion to which we hope the publication of this report will give rise will serve to improve its conclusions. But we may perhaps reasonably believe there is some probability that the results of such a broad enquiry are less likely to prove unfounded than any that would have been possible without so much assistance as we have received.

The core of our mandate has been, in the words of the Order-in-Council establishing the Commission, to report on "the probable economic development of Canada and the problems to which such development appears likely to give rise". More particularly, we have been asked to consider

- "a) developments in the supply of raw materials and energy sources;
- b) the growth to be expected in the population of Canada and the changes in its distribution;
- c) prospects for growth and change in domestic and external markets for Canadian productions;
- d) trends in productivity and standards of living; and
- e) prospective requirements for industrial and social capital."

That is a tall order, since there are few subjects that would not have some bearing on the economic future of a country like Canada with a comparatively mature and complex economy. In order to make our task more manageable, we have tried to focus our attention on subjects that seemed to us to be of primary interest and importance. What our choice has been and whether we have chosen well or ill, may be judged from the tenor of the following report. We should, however, explain that a few of the subjects we have not touched on or have passed over lightly were so treated not because we thought them unimportant, but rather because there were existing arrangements for giving them full consideration elsewhere.

We have also limited our responsibilities by making a few fundamental assumptions about the future. In the first place, we have assumed that a global war will be avoided. Such an assumption would seem obligatory for anyone with faith in the human species. In any case, it seemed to us pointless to consider what Canada's economic prospects would be in a world laid waste by radioactive dust. We have also assumed that, although there will continue to be cyclical business fluctuations, the recurrence of a major depression such as that of the 1930's need not be anti-

* The full text of the Order-in-Council establishing the Commission is printed in Appendix A.

cipated. That assumption may be too optimistic, but at later points in the report we offer some grounds to explain why we consider it not unreasonable.

There are also assumptions of a more technical and rather more arbitrary character that we have been obliged to make for the purpose of formulating statistical projections. For example, we have assumed that over the next twenty-five years there will be no change either in the general price level or in price relationships. Obviously that is completely unrealistic to expect. The stresses and strains to which the economy will be subject will be absorbed in large measure by changes in relative prices; and almost certainly there will also be changes in the general price level. But we know of no method by which long-range price changes can be forecast with the slightest degree of confidence.^{1*} In a few cases we have thought it possible to identify probable changes in the relative price of some commodities and in these cases we have tried to specify what we anticipate the changes will be. For the most part, however, our projections are based on an assumption of constant prices, so that usually projected dollar magnitudes may be taken to reflect our expectations concerning changes in the volume of output or consumption. In the same technical vein, we have also assumed that there will be no major changes in the economic policies either of the Canadian or other governments. That assumption is, of course, equally unrealistic but, in our opinion, equally necessary. If the United States were drastically to reduce its tariff or if Canada were to enter into an agreement with the United Kingdom to establish a free trade area, the volume and pattern of our exports would clearly be different from what we have projected. But it seemed to us that our task would become quite unmanageable if we were to try to allow for every contingent change in the policy either of the Canadian or other governments that might seem to fall within the bounds of possibility. For the purpose of making projections, therefore, we have deliberately assumed that present policies will remain substantially unchanged.

That is not to say that we have considered ourselves precluded from making suggestions for changes in present Canadian policy. On the contrary, we have interpreted the mention in our terms of reference of "the problems to which economic development appears likely to give rise" as an invitation to consider alternative policies where this seemed appropriate. In some cases, we have ventured to put forward fairly specific suggestions. In others, we have contented ourselves with indicating the direction in which solutions are likely to be found. Perhaps in most cases, however, our chief contribution has been to try to make the problems we foresee swim in a perspective of the future. Seen in that way, we hope they may prove easier to solve.

* So far as possible we have tried to avoid footnotes. Where they are necessary, they are marked by an asterisk. References, as distinct from footnotes, are marked by a superior number in the text and will be found grouped together following chapter 20.

A Nation Apparent

There is a nearer perspective, though, that deserves attention first. It is simply Canada and its people here and now. We have travelled back and forth across the country holding hearings in every province, and have paid visits as well to Labrador and New Quebec, to the Yukon and Northwest Territories. It is an austere experience to fly all day from Ottawa to Edmonton and then to set out the following morning to fly another thousand miles to Whitehorse. Space enters the bloodstream. As you breathe it in, it is absorbed into a heightened awareness of sheer distance, the senses are dilated and seem to move in another element. This is an immense country. Even in the East it takes a day to fly from Ottawa to St. John's, Newfoundland. In the West, the distances are even greater. The Mackenzie River flows twice as far as even the St. Lawrence and the system of rivers and lakes of which it forms a part stretches for over 2,000 miles.

A vast country. A harsh country, too. When we flew one July afternoon towards Makkovik on the Labrador coast where interesting showings of uranium have been found, the snow was still on the ground. Then a cold front rolled in from the north and we had to turn back. If we had reached our destination we would have found that the camp site had had to be changed because the site established the previous year was now under 16 feet of snow. If Canadians have difficulty in thinking of themselves as the city dwellers that they demonstrably are, it is partly because of the wilderness that stretches toward the Northern Lights, a wilderness from which the settled areas have been won and which will continue to dwarf whatever encroachments are made on it.

It is still an empty country and, in spite of the population growth that we anticipate, will remain relatively so. In the whole of the Northwest Territories with its 1,300,000 square miles there are no more than 15,000 people; and the military bases, mining camps, trading posts, and administrative centres are hardly more than pin-pricks in the surrounding bush and muskeg and barrens. There will be important economic developments in this area in the years to come. But it would take the ruthlessness of a Peter the Great to plant any large centres of population there. Even much further south the population is very thinly spread. The farming areas in Saskatchewan, for example, have been losing population steadily and in many districts it is now so far between one farm home and another that it is difficult to provide all the services and amenities that are required. These great and thinly settled stretches are all held together by air services and by the steel vertebrae of the continental railways. But because of the difficulty of the country there is still no good road across Canada and almost all Canadians motoring from Eastern Canada to the Prairies have to dip down through the United States. In the northwest part of Ontario,

particularly, the terrain is extremely rugged and there the wilderness comes right down to the border.

For, unlike the United States, Canada still has a frontier. It is perhaps unwise to stress that fact too much since it can draw attention away from the problems of social organization in the cities and towns where most Canadians live. It can also cloud the importance for economic growth of the technological frontier. That is perhaps the chief cutting edge of the economy and anything that can be done to enable Canadian industry of all kinds to profit from technological change will probably yield larger dividends than deliberate efforts to press the physical frontier further north, although that may be highly desirable on other than economic grounds. Yet the wilderness remains a partner in the venture. That fact alone is bound to lead to significant differences between economic development in Canada and in the United States.

The riches of this vast realm are widely spread. The central feature of the country is the Laurentian Shield covering most of Quebec and Ontario, spreading over northern Manitoba and Saskatchewan, and stretching up through much of the Northwest Territories. Formed by the cooling of ancient heats, glaciated, eroded, granite-hard, pitted by boulder-beds, muskeg, beaver-meadows, scribbled over by an almost indecipherable scrawl of lakes and rivers, this is the forbidding treasury from which most of Canada's mineral wealth is extorted — nickel, copper, lead, zinc, gold, silver, cobalt and, at its outer edges, uranium. To the west lies the sickle-shaped granary of the southern Prairies curling up from the southeastern edge of Manitoba through the middle of Saskatchewan and Alberta, including the grazing country to the southwest and, circling it, the dark brown and black soils regions that produce the finest hard northern wheat. Off the Atlantic coast are the fisheries which Lord Bacon described as being more valuable than all the mines of Peru, while off the Pacific Coast are salmon runs plentiful enough to supply one of the four large-scale salmon industries that are possible throughout the world. For almost every province the forest is an important resource, from British Columbia, where the lumbering industry is still supplied by monumental Douglas fir, to Newfoundland, which still has some of the finest black spruce stands on the continent. Water-power is also widely spread; and, as the limits of accessible horsepower are approached, great new energy sources have been discovered. Perhaps the most spectacular resource development in recent years has been the finding of large fields of oil and natural gas in Alberta and the other western provinces. Only less spectacular has been the development of iron ore deposits in Newfoundland, Quebec and Ontario. These are perhaps our most important natural resources. But that does not end the tale. If the Laurentian Shield is our principal source of minerals, the Cordilleras on the West Coast are not far behind, and there are valuable deposits too in New Brunswick. The Prairies produce almost half

of the commodities that are marketed from Canadian farms; but it is also a great asset to have good farm land near our largest cities in Eastern Canada. Then there is asbestos in Quebec, British Columbia and Ontario, gypsum in Nova Scotia, and the large deposits of potash that have recently been discovered in Saskatchewan.

It is perhaps as well that our travels have taken us chiefly to the principal cities of Canada since they contain the larger part of our most essential wealth — our people. It is also there that one can see most clearly the increasing diversification of the Canadian economy. New resource development has made Canadian production more balanced and rounded. But the growth of secondary manufacturing has also contributed greatly to the creation of a more broadly based economy; and it is typically located around the fringes of our largest cities. Driving in from Dorval airport to the centre of Montreal, or from Malton airport to the centre of Toronto, one passes one new plant after another built to produce electronic equipment, television sets, plastics, steel pipe, diesel locomotives, aircraft, aircraft parts, none of which were produced, or produced in any volume, in Canada twenty years ago.

As we have moved from city to city, we have not only seen something of the increasing diversification of the Canadian economy but have also been reminded of the diversity between the historic communities of which Canada is formed. At its heart lies the union between English-speaking and French-speaking Canadians, both proud of their own traditions, tenacious of their differences, but eager to make them contribute to the enrichment of the country as a whole, convinced that Canadians have a common destiny in the economic, as well as other, spheres and willing to pay the price of ensuring it. It is perhaps in Quebec City that one has the strongest sense of a unique community. It is a society that has been marvellously held together by race, religion, laws and language. It has participated largely in Canada's economic growth but has done so with a difference, as though it were never unmindful of other values and other centuries. The sense of continuity and uniqueness is also strong in many of the cities of the Atlantic Provinces which were founded as outposts of a maritime empire long before a Canadian nation was created and which still look towards the sea, although they have provided many of the people for the provinces lying to the west. In none of the provinces, though, can one be unaware of distinctive characteristics. Only a casual visitor bemused by the metropolitan bustle and the concentration of immigrants in Toronto could entirely fail to glimpse those levels of the city that still bear the impress of the back concessions of old Ontario, of the early Loyalist settlers and of the Methodist circuit-riders. The Prairie Provinces have had little more than half a century to acquire their own characteristics; but already they are easily distinguishable one from another and markedly different from the rest of the country. And British Columbia is a rich and rapidly growing empire of its own, separated by the Rockies.

One of the principal problems of Canadian statecraft has always been to reconcile the interests of the various regions within the national purpose. Economic measures have played an important part in this process. Although the exact geographical incidence of particular measures is sometimes impossible to define, the effect of some of them has clearly been to benefit some regions more than others. Often when that has happened, compensatory action has been taken later in an attempt to redress the balance. The earliest field for the deliberate exercise of economic policy was the field of public works. Even before Confederation public monies were being spent to provide canals that would promote commerce and industry in Canada East and Canada West. Subsidies have also been paid from early times for the construction of railways. It was a part of the agreements that brought the Maritime Provinces and British Columbia into Confederation that they should be linked by rail to the centre of the country; and for those days large grants were made by the Federal Government for the building of the Inter-Colonial and the Canadian Pacific Railways. Indeed, the policy of subsidizing railway construction has persisted to the present with federal subsidies currently being paid for the construction of an important extension of the Pacific Great Eastern Railway in British Columbia and of a line to Chibougamau in Quebec. Shortly after Confederation aid to railway building was supplemented by initiatives in land policy and commercial policy to form a comprehensive design to open up the West, to hasten industrialization, and to promote east-west trade. The Dominion Lands Act, with its homestead provisions, was passed in 1872; the tariff was substantially raised in 1879; and the Canadian Pacific Railway was completed in 1885. The effect of the tariff has been to benefit secondary manufacturing and since such manufactures have usually been located near the larger centres of population in Ontario or Quebec, it has worked to the advantage of the central provinces. Its differential effect, however, has been offset by changes introduced into the freight rate structure to the advantage of the Prairies and the Maritimes, and by various forms of assistance that have been granted to the agricultural and fishing interests. Since 1898 freight rates on grain moving both east and west from the Prairies have been regulated by legislation to implement the Crow's Nest Pass Agreement and have not been allowed to rise above the level at which they stood when that Agreement was made. Freight rates on commodities moving westward from the Maritime Provinces or within the Maritime area have also been modified by statute since the passage of the Maritime Freight Rates Act in 1927, which reduced rates on such traffic by 20 per cent of what they had been previously and provided that an annual subsidy should be paid to the railways to make up the difference.* Agriculture has been assisted by projects undertaken by the

* In March, 1957, the level of the subvention on outbound traffic was raised from 20 per cent to 30 per cent.

Prairie Farm Rehabilitation Administration; by payments made from year to year under the Prairie Farm Assistance Act to farmers with low yields; by government expenditures to cover losses incurred under the Agricultural Prices Support Act and the Agricultural Products Co-operative Marketing Act; by subsidies paid on the movement of feed grain from the Prairies to Eastern Canada and British Columbia; and by a number of other schemes, including subsidies to encourage the production of high-grade hogs and high-quality cheese. Similarly Canadian fishermen have been assisted by a system of price supports and by a variety of capital grants. Substantial subsidies have also been paid to the gold mines and to the coal industry, both of which have been seriously depressed in recent years. The social security measures that have been introduced since 1939, including unemployment insurance, family allowances, old age pensions and old age assistance have of course applied to the population as a whole; but nevertheless they have resulted in not insignificant transfer payments from one province to another. Since the inception of the post-Korean defence programme, defence contracts have played an important role in the peacetime economy and inevitably their effects have not been evenly distributed among the various economic regions.

No national economic policy in Canada can be realistic that fails to take into account these and other complex adjustments which have been made in an effort to further various national purposes, to provide minimum standards of welfare and to accommodate the interests of the different regions. Nor can it wholly disregard the claims and expectations to which such measures have given rise. They represent national choices that have profoundly influenced the economic structure of the country and, by modifying the decisions of the market place, have made it different than it would have been if its development had been left to the free play of economic forces. Indeed, it is doubtful whether Canada would be a separate nation today if economic forces alone had been allowed to determine our destiny. We assume that our fellow-Canadians believe as we do that the things we hold in common, the things we cherish, abundantly justify the effort to maintain our national identity and are willing to accept the consequences. If that is so, it follows that there will be occasions in the future, as in the past, when it will be necessary to withdraw some decisions from the arbitration of the market and make further deliberate adjustments of the kind to which we have referred. Fortunately, as our wealth increases, the cost of such necessary compromises may become relatively lighter. But it will always be risky to make such choices blindfold. Canada is growing richer, but there will always be need for skilful husbandry in a country so immense and harsh and empty and under the necessity of selling a large proportion of its output in a highly competitive world.

A Sketch of a Plausible Future

It is time, though, to reveal the outlines of the economic future that we foresee for Canada if our assumptions are realized and if we manage our affairs well. In that light, the few other preliminary comments we should like to make about economic policy may appear to have more content. It seems probable that, over the next twenty-five years, our population will increase to approximately 27 million. At the same time the labour force may well double and reach a figure of perhaps 10 million by 1980. Because of the quickening pace of technological change, we think that output per man-hour will show a higher annual increase over the next two or three decades on the average than it has during any period of comparable length in our history. The result of such an increase in our labour force and of the rise in productivity that we envisage would be a national income in 1980 three times as large as it was in 1955.

There will also be significant changes in the way the total output is made up. Agricultural production will continue to grow but will form a smaller percentage of the total. At the same time external demand for our farm products will be replaced by domestic demand as the principal dynamic determining the growth and changing structure of Canadian agriculture; and one result will be that the raising of livestock will become relatively more important while grain production will relatively decline. Canadian agriculture should be able to meet the total demands that will be made on it over the next ten years without any significant increase in occupied acreage or any significant intensification of land use. At some point after that, however, the changes needed to satisfy growing demand may be of a rather more fundamental kind. This will be especially true if, towards the end of the period under consideration, external demand for wheat, which will probably remain relatively constant for quite some time, again begins to move upward.

The course of external demand for the products of Canada's mines and forests will be very different, in our opinion. It will be strong and buoyant and will lead to a large expansion of output. There may well be more than a 50 per cent increase in the production of lead and copper; almost a doubling in the production of nickel and zinc; a fourfold increase in the production of aluminum; and more than a fivefold increase in the production of iron ore. It is probable that the output of newsprint and wood pulp will double and that there will be a 60 per cent increase in the output of lumber. Proved reserves of the principal minerals in Canada are already adequate in most cases to maintain production at the present levels over the next twenty-five years, and it is probable that new methods of prospecting will lead to the discovery of hitherto unknown deposits which should enable the increased demands that are anticipated to be met. Present timber resources seem adequate to supply the growth there will be in the forest products industry; but the higher cost of cutting less

accessible stands will result in greater attention being paid to silviculture and forest management and Canadians will increasingly come to regard their forest resources as a renewable harvest as lustrous and valuable as the gold of the Prairie wheat fields.

We anticipate that the resource industries, including forestry, fishing, mining and electric power, will grow in relative importance in the economy. In 1955 they accounted for approximately 10 per cent of total output. By 1980 that figure may have risen to approximately 15 per cent. In part, this will reflect growth in the production of some minerals such as iron ore, which will be largely exported in unprocessed form. More significantly, perhaps, it will mean that Canada will have become much more self-sufficient in fuels, since the principal resource industries where output is expected to outstrip the output of the economy as a whole are petroleum, natural gas and electric power. The primary manufacturing industries which are based on our natural resources, including, for example, mineral processing and the manufacture of pulp and newsprint, will also grow; but they do not seem likely to occupy a relatively more important place in the economy than they do today. The secondary manufacturing industries, on the other hand, producing chiefly for the domestic market, are likely to increase in relative importance with their output representing perhaps 25 per cent of the total by 1980, instead of the 22 per cent that they account for today. The great growth that we anticipate in the service industries (including the two broad sectors of the economy "transportation, storage and communications" and "trade, finance and private services"), will be more apparent in the employment opportunities they will provide than in their share of total output. In this sector output is extremely difficult to measure. But because we expect productivity in these industries to rise more slowly than in the economy as a whole, their share of total output may not be much larger than it is at present. Their share of the employed civilian labour force, however, may well increase from approximately 34 per cent to approximately 40 per cent. If civilian government and community services are included, the increase would be from 46 per cent to about 55 per cent. This change, together with a decline in agriculture's share of total employment from 15 per cent to, say, 7 per cent, are the most important changes we would expect in the industrial distribution of the labour force.

As the declining relative importance of agriculture and the growth of employment in the service industries would suggest, most of the population increase will accrue to the cities and towns and the character of the country will become more urban. In 1951, 62 per cent of the population lived in metropolitan areas or in other cities, towns or villages with more than a thousand people. By 1980 that proportion may rise to 80 per cent. Over the same period the proportion of the population living in metropolitan and urban areas of more than 100,000 people may rise

from 36 per cent to 56 per cent. Not only will population grow faster in urban than in rural areas, it will also be increasingly concentrated in the larger metropolitan centres. By 1980 both Montreal and Toronto may have grown to be cities of between 2.5 million and 3 million, and Vancouver may be a city of almost 1.5 million. The process of urbanization will call for heavy expenditures on housing, streets and highways, schools, hospitals and other facilities of that kind. Expenditures on the various forms of social capital may well total \$100 billion or more over the period, without making allowance for price changes.

Twenty-five years from now new capital formation will probably be financed to a greater degree than is true today by the savings of Canadians. Most of the external capital that will still be required will be supplied by United States residents, we should imagine; and United States ownership and control of a number of our largest and fastest-growing industries will be even greater than it is today, unless there is some change in present corporate practices or government policies. Our trade, though it will be a smaller part of our total economic activity, will also be increasingly focussed on the United States; and, in general, the economic relations between the two countries will become even more closely intertwined. Our deficit on current account by 1980 may be no greater in absolute size than it was in 1956; and the net inflow of foreign capital to cover it will be relatively much less than it is at present.

Our increased wealth will be reflected in much higher personal disposable income per capita, which may increase by some 70 per cent over the next twenty-five years. Some of the fruits of increased productivity will be taken in other forms than money. Average weekly hours of work will decline and there will be more leisure. Retirement will ordinarily come earlier than it does today; and, at the other end of the age scale, a higher proportion of young people will defer starting work until they have taken further training at universities and elsewhere. The problem of providing the teachers and educational facilities that will be required is among the most pressing that we face.

Modes of Adjustment

Most of the economic growth that we anticipate and of the economic adjustments that will be involved, will be brought about by the interplay of supply and demand as they are expressed in the market place. The hurly-burly of the market, marred as it sometimes is by exaggerated claims and speculative excesses, can obscure the essential function that it performs. For all its surface confusion, it is the forum for a dialectic of great practical importance. It is there that producers and consumers communicate with one another through the language of prices; and no better method of communication between them has ever been devised. Not only does a free market permit, and even enforce, the multitudinous adjustments that are necessary to create some rough harmony between what buyers want

and what producers have to sell; it also promotes efficiency through the spur of competition, which is constantly altering the relative position of producers and leading to a more productive use of the labour and capital and natural resources of the economy. It also has the added advantage that its operations can be carried on with a minimum of restrictions on the freedom of groups and individuals to make responsible choices. Maintenance of the atmosphere of freedom in which the price system works best is also, of course, a prerequisite of political and social health. At the same time it is the atmosphere in which daring innovations which can enrich the society as a whole are most likely to be made and applied.

This last consideration, however, suggests that, notwithstanding all the benefits that may be expected to flow from a free market system, it would be unwise to become too wedded to the conditions which, according to some theories, would perfect it. Such conditions, if fulfilled, would enable the price system more exactly to make the marginal adjustments that would result in a more productive allocation of the factors of production. The resulting marginal increases in output per capita, however, may be much smaller than major increases in productivity resulting from the introduction of technological innovations by industry, or than the over-all growth in output resulting from a continued high level of demand sustained by successful full-employment policies. Both daring innovations and successful full-employment policies may involve departures from what have been held to be the theoretically desirable conditions for a free market. For the successful introduction of large-scale technological improvements some departure from conditions of perfect competition may have to be countenanced. For the successful conduct of full-employment policies deliberate intervention by the central government will certainly be required.

The role of independent businessmen in encouraging and introducing innovations is one of a number of reasons why there will always be some irregularity in the rate of capital formation and some fluctuations in the anticipated rising curve of business activity. But much can be done to smooth out the curve and to maintain high levels of employment while avoiding inflation. Nothing has impressed us more during the course of our inquiry than the cardinal importance of a successful full-employment policy. It can do much to further the welfare of Canadians by protecting them from the waste and misery of unemployment and from the inequities and distortions caused by inflation. As we were reminded by Professor J. K. Galbraith, it can also contribute powerfully to long-run economic growth by maintaining a level of demand that presses on the existing capacity of the economy to produce, and so provides an incentive to develop the basic factors of production with a resulting increase in total output.² Moreover, as the Canadian economy becomes more diversified, there is more scope for the successful application of such policies, although

external demand, which is not amenable to their influence, must remain for as long as we can foresee an important determinant of Canadian growth and prosperity. We have also been impressed, though, by the difficulty of implementing a successful full-employment policy. It therefore behooves us all to do whatever we can to see that room is left for the exercise of such powers as it may be necessary to wield and that the economy is kept flexible enough to respond readily when they are applied. All in all, we believe that by far the most important responsibility of the federal authorities in the field of economic policy is so to adjust fiscal, monetary and other measures that there is a high level of demand and of employment opportunities and yet a stable price level.

That, however, does not exhaust the fields in which deliberate intervention by the Federal Government is desirable. Even a successful full-employment policy may leave untouched the problems of particular regions and areas that are not sharing fully in the economic progress of the country as a whole. It would also leave undone many things that Canadians might like to see done even though they are hardly appropriate to be undertaken by private enterprise. We have spoken of the riches of the country. And it is rich. But there are many ways in which it is poor, even compared with some countries which have a much lower income per capita. Most of our cities are still poor in their social assets and amenities. We could do with fewer level-crossings and more museums. The general prosperity also often conceals the fact that, both in the cities and in the country, there are many Canadians with incomes insufficient for their needs. In spite of higher wages, there are still families with too little money to bring up their children decently. In spite of social security measures and the efforts of charity, there are still old people slowly dying in back bedrooms on which the rent is long overdue.

There will be plenty of ways to spend our increasing national wealth. We will first have to meet the claims of defence and decide what we are prepared to pay as our contribution to the collective military force of the Western world designed to deter an atomic attack. We may also want to round out our social security programme and to increase the payments made under it. There will also be proposals for expenditures on projects to add ease and grace to our common life and on other projects that would contribute either directly or indirectly to our economic growth. But we must recognize that these claims are all competing. At any one time we may have to decide that some of them are beyond our present means and have to be deferred. For if they were accepted indiscriminately and all superimposed on the normal operations of the economy, the result might well be an inflation that would bear cruelly on some groups in the community and that would price us out of some of the world markets in which we must compete. If that were to happen, we might wake up to find that our prodigality had cost us dear.

However, we are convinced that there will be latitude to do at least some of the things that we believe most Canadians think would be in the national interest and that would not be done in the normal course of private enterprise. After we have paid for defence what we think we must, and have spent on social security what in all the circumstances we think we can, we believe there should be something over to spend on other national purposes. We suggest that some of our increasing national wealth should be used to facilitate adjustments that would make the economy stronger and more resilient; to knit the various parts of the country more closely together; to finance developments that would indirectly promote economic growth and permanently add to the country's assets; to assist regions that may not be keeping pace with the economic progress of the country as a whole; and, finally, to encourage Canadians to participate more fully in the economic growth of their own country.

The promise of the economic future as we foresee it is one to command enthusiasm. An atomic war would blast it. A deep depression would blight it. But failing either of those catastrophes, which we believe it should not be beyond the wit of man to avoid, the next two or three decades should bring great prosperity for Canadians. There is, however, one further risk that might prevent the promise that we envisage from being realized. In Canada, as in other countries, there are social tensions latent in the community that in times of stress might come to the surface and cause a serious setback to economic progress. There are tensions between regions, between races, between various economic groups and between management and labour. If Canadians as a whole were to prove indifferent to the economic difficulties of particular regions; if the effort of sympathetic comprehension between the races in Canada were to be suspended; or if any of the economic groups in the community were to make exorbitant claims on its resources; in all of these cases the consequent strife and discontent might well bring economic progress to a full stop.

That is as much as to say that, in considering Canada's economic future, we are dealing with the surprising and contrary stuff of human life. The future we speak of will be made up in reality of the fortunes of millions of men and women whose lives are not bounded by economic interests nor explicable in terms of economic categories. We speak of the labour force, for example. But we are really referring to myriad individuals each with his own desires and sufferings and often possessed by singular and special aims. If, in this report, we say little about the watery splendour of human life in its real complexity, it is not because we are tempted to over-estimate the final importance of material progress. Our justification is that no human aim, whether of happiness or achievement or some form of devotion, can be entertained without at least a minimum of material goods; and most men will need more than a bare minimum if their talents are to be displayed and exercised. Nevertheless, it is true that in speculating on Canada's

economic future, we are merely setting the stage on which a multitude of separate dramas will be played. Society, though, conditions the possible action, and in its turn is conditioned by the economic structure of the country. For that reason there is ultimately a connection between the numerical abstractions with which, of necessity, we must deal and the mysterious quality of life itself.

Those who built this country showed by what they did that they believed its economic future was not entirely beyond their power to control. In some respects their problems were simpler than ours. The world in which they lived was not so menacing as today, although we should not minimize the external dangers and difficulties they faced. Nor was the rate of change in their day so rapid as to create such acute problems as we have of adjusting old values to new circumstances. In other respects perhaps we have the advantage of them. New economic theories have suggested new ways of controlling the economic environment. Moreover, the nation is now much wealthier than it was then, and can perhaps afford to concern itself more than they could with the proper distribution of wealth rather than with its creation. Even in our ampler circumstances we will probably do well to be not so cavalier about economic costs as they sometimes showed themselves. But insofar as they believed that within the limits of economic reason they could mold the future of the country to their own desires and purposes, we commend their spirit to our fellow countrymen as a proper guide for the future. It is in that spirit that the rest of this report is written.

THE WORLD ENVIRONMENT

WE HAVE found that our minds have been stretched in trying to comprehend the breadth and diversity of our own country. But that is not enough. It is necessary, at least in thought, to circumnavigate the world in order to see Canadian life and problems clearly. Something of Canada's essence is defined by its external relations. Much of its economic structure can be explained only in terms of its external trade. Canada is one of the few countries of the world that has within its own boundaries most of the raw materials necessary to make it a great industrial nation;¹ and since 1945 there have been many discoveries and developments that have tended to make it more self-sufficient. But it is, and must remain, an open economy highly dependent on foreign trade. The explanation is not only that Canada needs to export in order to pay for necessary imports. A more important reason is that massive capital development has taken place to serve foreign markets. The grain elevators on the Prairies, at the head of the Lakes and at Montreal; the double track from Winnipeg to Fort William; the railway to Churchill on Hudson Bay; the fleet of specialized freighters on the Great Lakes; these are all heavy investments in the future overseas demand for wheat. Similarly, large amounts of capital have been invested in pulp and paper mills, iron ore mines, and base metals smelters to produce and process raw materials for export to the United States, the United Kingdom and other countries. For at least 50 years the ratio of world trade to total world output has been gradually falling. Over the past quarter century, the proportion of Canadian output accounted for by foreign trade has also shrunk appreciably and will probably undergo a further gradual decline. But any drastic fall in foreign trade would mean that the value to us of these great capital assets would be sharply reduced and would involve widespread and wasteful dislocation of other resources, both human and material, before they could be reassembled in a new pattern of production.

The ships loading lumber on Vancouver Island or aluminum ingots on the Saguenay are reminders of how deeply our material well-being is involved in the prosperity of other countries, even outside the boundaries of North America. But there are other movements that suggest that our involvement in the world is even more crucial. The reinforcements flowing to the Canadian brigade group and air division in Western Europe, and the movement of air-freight for the construction of radar stations north of

the Arctic Circle bear witness that decisions taken outside our own boundaries can be matters of life and death for us. We live on a shrivelled planet. If we are to have a just view of our future, we must try to have some idea of the complex forces that are abroad in the world-wide community.

Since what is nowadays being put in question is hardly less than the survival of the species, it may be as well to begin by remembering how much the people of all countries have in common. With international issues increasingly reduced to almost biological simplicity, it bears repeating that many of the impulses and preoccupations of those living in Rome or Delhi — yes, or Moscow — are the same as ours. The gales of change that blow about the world are so swift and unpredictable, it is easy to forget that they blow over human creatures who share with us the will to survive, the need to provide for themselves and their families, the craving for community, and the desire to triumph in some way over time. These and other human impulses are crossed by different traditions, by different habits of thought, and by different aspirations. But they are coming more and more to assume their primal importance as people throughout the world increasingly share in a common predicament. We begin, then, with the light of common day. Yet there are situations, of course, in which it cannot penetrate. What we have learned of the last days of Hitler, surrounded underground by a bizarre court of fanatics, jugglers, quacks, seems hard to recognize as part of our own times; in its terrible absurdity we feel that it would be more aptly told of the Emperor Tiberius at his most demented. And the more recent revelations about Stalin's latter years describe an almost equally lurid and repulsive scene. Aggressiveness, suspicion, self-deluding hostility and hysteria, we are reminded, are also intrinsic elements of the human condition, and elements that civilization, for all its arts, can scarcely hold at bay.

The Burden of Defence

Over all our human encampments, sheltering so much endurance and courage and squalor, towers the principal totem of our age — a fireball two or three miles across, rising into an atomic cloud supported on a slender stalk, through which rush radio-active particles to fall over hundreds of miles in a gentle, lethal rain. For the purpose of our forecasts, we have had to assume away the possibility that there will be a world-wide holocaust and that destruction will be visited on Canadian cities. But, in candour, we cannot deny that over the next two or three decades we will live under the shadow of that ambiguous emblem. It will influence our daily lives, colouring the headlines we read and the hopes we have for ourselves and our children. It will have wide effects not only on the relations between states but on domestic policy as well. Its implications will be as much economic as political since governments, in framing national budgets, will have to take into account the risks of war and the necessity

of providing an effective deterrent. In considering our economic prospects and in devising economic policy, as well as in other activities, we will never be able to forget that if the efforts to keep the peace were to fail and if a new world war were unleashed, a single hydrogen bomb — of a type that perhaps now must be considered old-fashioned — could contaminate with radio-active fallout an elliptical area 200 miles or more in length, stretching, for example, along Lake Ontario from Hamilton to Kingston or along the St. Lawrence from Cornwall to Quebec.

What, then, are the risks of war? The Soviet Union has frequently declared its intention of living peacefully with the rest of the world and from time to time turns a more ingratiating face towards the West. But it has never abandoned its ambition of Sovietizing the world and still insists that there can be no quarter between competing ideologies. We may hope that, as the years go by, the rough edges of Soviet policy may be smoothed away and more crevices be found in which genuine tolerance and understanding may blossom. There have been examples in history of creeds ambitious of world domination losing their aggressiveness and of revolutions becoming domesticated. But the first process has always taken a long time and the second has always been attended by turbulence. So long as Soviet Communism cherishes ecumenical ambitions, has such little respect for personal freedom, and at the same time possesses such powerful weapons of mass destruction, world tensions will persist. It is also possible that Communist China, which is at an earlier stage both of its industrial development and of its revolution, may become increasingly aggressive and increasingly dangerous as it acquires the industrial strength and the modern weapons necessary for a policy of expansion. Indeed, over the period we have to survey, nuclear weapons may become so widely available that they will be at the disposal of even much smaller countries with the result that local outbreaks not directly affecting any of the Great Powers might have incalculable consequences.

Since we began our inquiry, the United Kingdom has joined the select circle of nuclear powers. But it probably remains true that the Soviet Union and the United States are the only two countries with means at their disposal of mass destruction on the widest scale. Both of them have in their armouries hydrogen bombs capable of destroying even the largest city and both of them in all probability have the power to deliver such weapons by piloted aircraft against any possible adversary. It seems certain that before very long the power of delivery will be immensely increased with the production of intercontinental ballistic missiles, which are now being developed by both the Soviet Union and the United States. A missile of this type fitted with a thermo-nuclear warhead could be launched from a small and almost undetectable site deep in the Eurasian land-mass and within a few minutes could annihilate any city in North America. Equally devastating attacks could be made over shorter distances by intermediate-range ballistic missiles or by nuclear weapons launched from submarines.

Since the end of the Second World War the Soviet Union has had a great preponderance in military manpower and in so-called conventional weapons and used this power to extend its control beyond its own boundaries. Further advance was checked by the will of threatened peoples to resist; by economic recovery promoted by large-scale assistance, particularly from the United States; and by the creation of a network of alliances, including notably the North Atlantic Treaty. But the principal deterrent was the atomic superiority of the United States and the power of its Strategic Air Command to deliver nuclear weapons over very great distances. This superiority was absolute until 1949 when the United States' monopoly in nuclear weapons was broken with the explosion of an atomic bomb in the Soviet Union. However, the United States still had a clear advantage in its power to deliver nuclear weapons and in the headstart it had made in constructing the hydrogen bomb. Now that the Soviet Union also possesses stocks of hydrogen bombs and squadrons of long-range bombers capable of intercontinental flights, and is developing intercontinental missiles, there would seem to be a situation of uneasy nuclear stalemate. The deterrent power of the Strategic Air Command is still potent and increasing. But it is matched by the deterrent power of the other world colossus, which may be of at least as swift and terrible a kind and which in any case is formidable enough to drain all meaning from the notion previously entertained that nuclear superiority lay with the West. It may be that this precarious equilibrium, where each of the antagonists can inflict appalling damage on the other, has sobered the Soviet Union as well as the United States. Looking into the fiery furnace, they may have concluded that their quarrel with the Western world should be pursued by other means. But insofar as the idea of atomic superiority has lost much of its relevance, new and greater importance attaches to the need to maintain the economic and social health of the Western democracies in the long competition they apparently face with Soviet Communism; to assist the under-developed countries accelerate the pace of their economic growth; and finally to exercise a supple and skillful diplomacy, that is disabused yet never cynical, hopeful yet ever on its guard.

Nevertheless, no error could be more fatal than to believe that our responsibilities to the future will be fully discharged if we concentrate on our own economic development — so long as we spare something for assistance to other less fortunate countries and are always on the alert to seize opportunities for diplomatic negotiation which might reduce international tension and ultimately produce some measure of genuine understanding with the Soviet Union. The nuclear weapons that have now been perfected and the more dreadful successors that will surely follow may prove so revolting to human reason and to such shreds of the idea of human solidarity as still are left that they will never be used. The fact remains that they were invented and developed for making war. No one can be sure they will never again be used for that purpose. Undoubtedly

knowledge of the wide and deep scars that they would burn on the planet will have some restraining effect. But it is not difficult to foresee events which might make a global nuclear war almost inevitable. For practical purposes there may now be a situation of nuclear stalemate; but a moment might come when, in the opinion of an aggressor, the advantage lay with him, even though swift retaliation would ensue. Or a miscalculation might be made about the areas considered vital to its interests by one of the antagonists. Or efforts to localize comparatively small outbreaks might prove unsuccessful, tactical atomic weapons might be used and a nuclear holocaust be precipitated.

In such a global war, Canada would almost certainly be involved from the outset. It would be bound by its treaty obligations to the United States. It would be bound by its adherence to the cause of which the United States is the champion. It would be involved, if for no other reason, because it lies only immediately outside the bull's eye and nuclear weapons carried in planes or intercontinental missiles making for targets in the United States might fall on Canadian territory. Above all, Canada would be involved because the defence of the North American continent can be planned only on an integral basis, and as a result the defensive preparations of both countries will increasingly interlock.*

The North Atlantic alliance, of which Canada forms a part, is at present defended essentially by the deterrent power of the United States Strategic Air Command, supplemented by the United Kingdom Bomber Force. Although the retaliatory weapons at the disposal of the United States will change, there is no likelihood of their ceasing to be our principal safeguard. The deterrent power, however, is highly complex. It is not composed solely of nuclear weapons carried in long-range bombers or in intercontinental or intermediate-range ballistic missiles. There must be alternate and intermediate bases for the bombers. There must be warning systems so that they may get into the air before they are attacked. There must be fighter planes to intercept incoming bombers, if possible, before they reach their targets and missiles designed to bring down incoming missiles or at least derange their delicate control-mechanisms. It is to this complex web of air defence that Canada's military contribution in the future will clearly be chiefly devoted. There will continue to be reasons for contributing to the covering force that now shields the vital industrial centres of Western Europe. But more and more our defence efforts will be directed towards guarding the West's power to retaliate and towards protecting our own cities.

The nature of air defence will be determined by the course of weapon development. What the stages of such development will be, is not perhaps impossible to predict. But it is extremely difficult to judge how far the

* The announcement on August 1, 1957, of the establishment of an integrated North American Air Defence Command is an illustration of this.

stages will be telescoped. Canada is now developing a new all-weather interceptor, the CF-105, that will be beginning to come into use before the end of the decade. It will fly at approximately 1,500 miles per hour and will be equipped with rockets that can be guided onto incoming bombers. To be fully effective, the new fighter will require a much expanded and highly expensive environment on the ground, including longer airstrips and new radar installations connected by land lines that will feed information into semi-automatic data processing machines. By the time this new system of defence is in operation early in the 1960's, it is probable that ground-to-air guided missiles will also be coming into use and there will be a period when both piloted planes and unmanned guided missiles may be available to attack incoming bombers. At any time, however, the problems of defence may change radically with the advent of the intercontinental ballistic missile. What defence may be found against it, is yet unknown. But it seems probable that warning lines will still be needed, since it must be remembered that, provided the intercontinental missiles being developed by the United States and the Soviet Union become operational at about the same time, the equation of mutual deterrence will remain unchanged, although the time scale on which the equation will be plotted will be greatly compressed. Then it will be the minute, rather than the hour, hand that will measure the time taken by the missile to reach its target, the time given by the warning system and the time available to launch a retaliatory salvo.

In spite of all the uncertainties about the future course of weapon development, it is perhaps not impossible to foresee, at least in very general terms, what the requirements of air defence will be over the next 10 or 15 years and so to identify those industries that are likely to be the chief beneficiaries of Canadian defence expenditures. New planes and missiles and airfields and launching-sites will be needed and they will probably be located further and further north so that there may be a chance of intercepting attacks before they reach Canadian cities. The mesh of radar stations will become more closely linked, and more complicated equipment will be installed. The means of detection will be supported by costly systems for tracking and interpretation. The industries, therefore, that are likely to receive the largest volume of defence contracts are the electronics industry and the aircraft industry, although the latter (which could hardly hope to exist in Canada were it not for continued defence orders²) may find itself producing more and more missiles or components for them and fewer and fewer military aircraft as the years go by. The range of other industries that will feel the effects of defence expenditures will be wide, particularly now that the proportion of the defence budget being spent on maintaining the present forces in being and supplying them with personal equipment is constantly rising. But for few other industries — shipbuilding is a possible exception — will defence orders represent a significant percentage of total output, although such orders may be large enough to give

a welcome fillip to particular companies in areas where economic development is lagging behind.

Since 1951, when an expanded defence programme was adopted as a consequence of the outbreak of war in Korea, total Canadian defence expenditures have constituted approximately 40 per cent of the federal budget, and, over the past five years, have fluctuated between 6 per cent and 8 per cent of the Gross National Expenditure.* If the international situation were to deteriorate and the world were to seem on the brink of war, these percentages might rise sharply. If, on the other hand, the military danger were to recede, there could be a substantial drop in the defence budget. Failing any such major changes, it seems likely that defence expenditures over the next two or three decades will increase somewhat in absolute terms but will represent a smaller proportion of the national expenditure than they do at present. Obviously the annual decisions that will have to be taken on this subject will be influenced by an appraisal of the risks of war as they may seem at the time, and by an appreciation both of weapon development and of what expenditures may be required in order to help provide an adequate deterrent against possible attacks. If the present enigmatic peace continues, these military considerations will have to be balanced against an analysis of hostile economic and diplomatic penetration in various parts of the world and a calculation of what might be the cost of useful counter measures. Another offsetting consideration will be the question of how large defence expenditures can be borne by the Canadian economy over the long run without inhibiting its growth or sapping its resilience. All these considerations will presumably be considered relevant in other countries as well. In addition, Canadians will no doubt want to take into account the comparisons that may be drawn between their own defence expenditures and those of the United States. A much wealthier country can support substantially larger defence expenditures, even on a per capita basis. But Canadian public opinion will probably expect Canadian defence expenditures to bear a respectable relation to those being made by the United States, if, as may be expected, the Canadian view of the international situation is not very different from that held by the United States and particularly if, as is true at present, large sums are being spent by the United States for military installations on Canadian soil. How all these conflicting considerations will be resolved, will vary from year to year. But if we may hope that the defence burden will decline somewhat in relative terms, there seems no doubt that it will continue to be heavy.

The Promise of Technology

Inevitably a promethean age creates burdens — burdens of defence, of anxiety, of foreboding. But it brings opportunities as well. As the

* Gross National Expenditure is, of course, the counterpart of — and equivalent to the — income that constitutes Gross National Product.

secrets of nature are split open not only is a whiff of impending chaos released, but there is more opportunity of building a Periclean democracy, with machines replacing the slaves. The electronic developments that have been made for the purposes of defence can be used to eliminate drudgery; and nuclear reactions may be controlled to produce innocent energy and to carry out some industrial processes that would otherwise be impossible. It seems likely that nuclear power will first become of importance in countries where other energy supplies are neither so cheap nor so abundant as they are in Canada. Even in this country, however, it is probable that twenty-five years from now perhaps 10 per cent of all the electric power generated will come from nuclear installations. In the more settled parts of Canada nuclear power will remove the spectre of shortages, while further north smaller plants may become an economical means of meeting the energy requirements of distant mines, pulp mills and other settlements. In such marginal ways at least, the terrible forces that have been unloosed may be tamed by human skill, as in the past man has put his bridling hand on the white manes of rapids and waterfalls.

Although Canada contributes to scientific and technological research, it is something that transcends national boundaries. It forms a community of its own of which men of many races and nationalities are free, and so is part of the international environment that surrounds us. Not only is there no such thing as a Canadian physics or chemistry, but Canada is a large net importer of scientific and technological discovery. We are dependent for much of the technological research needed by our industries on work done in the United States and other countries, and our scientific indebtedness is even more widely spread. As it becomes possible to transmit electricity over greater and greater distances, thanks will be due to the pioneer efforts of scientists in Sweden as well as in Canada. As our transcontinental air services fly on faster and faster schedules and so bind the country more closely together, much of the credit will belong to those in the United Kingdom who invented the jet engine. In some fields Canadian scientists have made discoveries that have received wide recognition. This is particularly true of medicine. There are other fields in which our climate and topography have provided the spur for inventions that have been widely used in other similar parts of the world. New strains of wheat to be grown in northern latitudes have been as successful in the Soviet Union as they have been in Canada; and water-wheel generators developed here are used in many other countries whose hydro-electric resources resemble our own. For a comparatively small country, our contributions have not been inconsiderable. But, given the rarity of the highest kind of scientific and technological genius, it is inevitable that most of the advances to transform Canadian life should come from abroad. Typical, perhaps, is the part played by Canada in the development of nuclear energy. Lord Rutherford carried out research on radio-activity at McGill University for a few years, although, of course, his great work was done in the Caven-

dish Laboratory in Cambridge. Fundamental work of an important kind was also done at the University of Toronto under Sir John McLennan. When it was decided in 1940 to try to construct an atomic bomb, the level of physical research in this country was high enough for the Government to claim successfully that Canada should participate in the project with the United States and the United Kingdom. The reactors built at Chalk River as a result of that decision have been the source of much new information in the field of nuclear physics. Yet such contributions are properly thought of as only one tributary to the stream of research that has been fed from many parts of the world.

The most remarkable feature of world progress in recent years in science and technology has been the acceleration of pace. "The greatest of the changes that science has brought," Dr. Robert Oppenheimer has written, "is the acuity of change; the greatest novelty the extent of novelty. Short of rare times of great disaster, civilizations have not known such rapid alteration in the conditions of their life, such rapid flowering of many varied sciences, such rapid changes in the ideas we have about the world and one another."³ It was only in 1939 that Emil Hahn made the fundamental discovery about the uranium nucleus that made nuclear fission possible. Yet less than six years later, the first atomic bomb was exploded over Hiroshima. And in other fields, technical progress has been almost as rapid. The proliferation of new chemicals to be used in the manufacture of plastics, synthetic rubber, and for the bonding of plywoods and glass has come so quickly that one very large chemical company in the United States now estimates that more than 50 per cent of its sales are in products introduced commercially only within the last 25 years.⁴

Much of this progress has been accelerated by the requirements of defence. But there is an even deeper reason for the quickening pace. It is a characteristic of science that matters which once were the object of research and speculation quickly become tools for further advance. The particular electro-magnetic waves, for example, that are used in radar have themselves become valuable probes and have been productive of new discoveries. Similarly, controlled radiation from nuclear reactors has thrown new light on the firmament of the nucleus and has also been used to render a wide range of substances radio-active, so providing valuable new instruments for research in biology and in the strength of materials. It is as though science were a relay race where the baton held by the runners had properties that enabled each lap to be run faster than the last.

One consequence of the swiftness of the race has been that the distinction between science and technology has grown less sharp and less important. How much of the research done to produce nuclear weapons was theoretical and how much applied? Scientific discoveries opened up technological possibilities on which engineers went to work. But their

achievements — and their failures — posed new scientific problems which had to be solved before further technological progress could be made. And of course there have been other forces besides defence requirements that have been at work to translate scientific discoveries without delay into new goods. The pressure of competition and the imperious need to earn a profit on the large capital outlays required for many modern industrial processes have stimulated interest in possible by-products and promising innovations; the scarcity of labour in times of full employment and the pressure for higher wages have made necessary the development of machinery to increase output per man-hour; and the arts of advertising have been used to persuade the public that they want the new consumer goods that industry can turn out. What one has to picture is a set of great driving wheels — the anxieties of defence planners, the absorption of scientists in their chosen specialties, the competitive ambition of entrepreneurs — all accelerating the rate of change and combining to form a process in which product development and industrial research and theoretical inquiry are closely linked.

If all forecasting is hazardous, it is particularly difficult to guess what technological changes will have wide application in the future, since no one can tell what fundamental clarifications of our understanding of the physical world may be produced by luck and genius, and since this is the unpredictable basis of technological progress. Yet any view of the next two or three decades would be incomplete without some idea of the possible changes that science and technology may bring. If we must guess, we can perhaps comfort ourselves with the reflection that there are senses in which the future is here already. It is here in the sense that there are developments already visible that will spread and become of much greater economic significance. After walking through a highly automated chemical plant costing approximately \$80 million and yet operated on some shifts by only 70 men, and after, in particular, having seen the whole operation supervised by two technicians who merely glance along a wall of gauges in the control room and every two hours log down the readings, the visitor may come away feeling that he has seen the future — and it works.⁵ There is another sense as well in which the future is already present. It is present in the sense that the appetite for innovation and profit is now influencing planning and effort. So there may be some basis for talking about the changes that the future may hold, even though it must be realized that there is no way of ascertaining which of all the myriad possibilities will be realized.

In recent years the most spectacular changes in man's understanding of his environment and in his power to change it have been made by the physicists; and their work will undoubtedly continue to be the source of widespread innovations. In addition to generating energy, nuclear reactions may be used to sterilize food and to produce catalytic changes, so

increasing the variety of available chemicals. Automation will spread, and electronically controlled systems will increasingly be installed in industrial plants and where a large volume of clerical work has to be done. Electronic developments will also make possible improvements in communications. Colour television will be supplemented by facilities for receiving programmes from overseas and also for recording programmes for repetition at the individual's pleasure. Through the use of transistors, radios and telephones will be reduced to much smaller sizes and will become more portable. In the field of chemistry new uses for plastics will be developed and new ways of making them. It may become convenient and economical, for example, to pour houses entirely out of plastics in a single operation. It also seems certain that chemistry will more and more become the pervasive science both in metallurgy and in the forest products industry. Chemicals will be put to wider use to leach out minerals from the ore and to separate wood fibres and recombine them in new forms. In metallurgy the spread of chemical processing will make possible more continuous flow operations and more complete recovery of all the minerals that the ore may contain. Present operations in many pulp and paper mills are already highly automatic; but wider application of chemical processing will here again enable fuller use to be made of the raw materials. In both fields one result will be to widen the store of materials that can be profitably exploited. The biological and medical sciences, it may be hoped, will come into their own if only because of apprehension about the effect of radio-activity on human genes and the risk of mutations that might destroy the race. Experiments to test the effect of radio-activity on plants and animals and to deliberately induce mutations may result in hardier and more productive strains and so increase agricultural yields. More fundamental physiological research may throw light on how cells grow and divide. This may lead to knowledge of how to check the uncontrolled multiplication of cells that occurs in cancer and may even suggest how to mitigate the effects of aging.⁶

But that may be to look too far into the future, since it assumes fundamental discoveries that have not yet been made. If we were to follow that path, we would have to consider even more startling possibilities. Knowing that already the earth has been ringed by artificial satellites, we would have to take into account the possibility of interplanetary travel. And remembering that even now silk stockings and vanilla and newsprint are all made from wood fibre, we would have to scan the horizon for an age of metamorphosis in which almost anything could be made from anything else and where the nature of the initial raw material would be comparatively unimportant.

It is time, though, to decelerate through the stratosphere and return to the known world. After all, twenty-five years is not an inhuman distance to peer into the future. We, or our children, will see the world as it will

be then, and we can be fairly confident that whatever technical revolutions may be in store will not work themselves out so rapidly as to make it wholly unrecognizable. In all probability iron and steel, for example, will be of as great economic importance then as they are now; and many other raw materials will not have been displaced. We can be even more certain that the people of the world will not have changed radically. To speak only of Canada, we can be sure, if we can be sure of anything, that twenty-five years from now boys will still be going on camping trips and gardeners will still be growing sunflowers against the backyard fence.

Some World Trends of Economic Importance

The two most obvious conclusions of economic significance that emerge from surveying the peoples of the world would seem to be that world population is growing rapidly and that there are secular trends of opinion that may have as wide economic effects as other trends that are more amenable to measurement and analysis. If man sometimes seems an alien among the heights and abysses that have been opened up by his own scientific brilliance, he has managed more successfully to place himself near the centre of the economic universe. Ideas of what should be possible have been sown on the wind; have won wide acceptance; and have led economists and others to undertake the hard labour of trying to elaborate new theories and find new practical measures that would enable such hopes to be realized. The new structure is incomplete and in some respects untested. But it promises to be more habitable than any that has ever been known before.

a) World Population Growth

A word first, though, about world population growth. The increase that began in Europe towards the end of the seventeenth century and spread to other continents is still continuing. In preparation for the World Population Conference in 1954, the United Nations drew up population forecasts for the main areas of the world; and these have been revised by a member of our staff⁷ to take into account new information that has since become available about the population of China and the Soviet Union and new population forecasts that have since been made both for the United States and Canada. These revised world estimates are shown in Table 2.1. Obviously they must be regarded as being even more conjectural than the estimates made for us of Canadian population growth, since they rest, in the case of many countries, on very sketchy census material. But if that warning is borne in mind, they can be of value in indicating the probable dimensions and continental distribution of the world population growth that is to be anticipated. In any case, they suggest that world population, which is currently increasing at an average annual rate of 1.3 per cent, will be almost 50 per cent greater twenty-five years from now than it is at present, rising from an estimated total of 2,690 million in 1955 to a projected

Table 2.1

WORLD POPULATION 1920-80 (millions)

Continent	Estimated ^a					Projected ^b				
	1920	1930	1940	1950	1955	1960	1965	1970	1975	1980
Europe (incl. U.S.S.R.)	486	531	572	574	606	634	664	693	721	748
North America	117	135	146	168	183	198	213	229	249	270
Canada (excl. N.W.T. & Yukon)	(8.5)	(10.2)	(11.4)	(13.7)	(15.6)	(17.5)	(19.5)	(21.6)	(24.0)	(26.7)
Central and South America	91	109	131	162	183	205	230	259	291	327
Oceania	8.8	10.4	11.3	13.0	14.6	14.8	15.6	16.3	16.9	17.5
Africa	140	155	172	199	223	224	238	254	271	289
Asia (excl. Asiatic U.S.S.R.)	967	1,073	1,213	1,360	1,481	1,535	1,640	1,764	1,910	2,081
World total	1,810	2,010	2,250	2,480	2,690	2,810	3,000	3,220	3,460	3,730
Percentage distribution										
Europe (incl. U.S.S.R.)	26.9	26.4	25.5	23.2	22.5	22.6	22.1	21.5	20.9	20.0
North America	6.5	6.7	6.5	6.8	6.8	7.0	7.1	7.1	7.2	7.2
Canada (excl. N.W.T. & Yukon)	(0.5)	(0.5)	(0.5)	(0.6)	(0.6)	(0.6)	(0.6)	(0.7)	(0.7)	(0.7)
Central and South America	5.0	5.4	5.8	6.6	6.8	7.3	7.7	8.1	8.4	8.8
Oceania	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Africa	7.7	7.7	7.7	8.0	8.3	8.0	7.9	7.9	7.8	7.7
Asia (excl. Asiatic U.S.S.R.)	53.4	53.3	54.0	54.9	55.1	54.6	54.7	54.9	55.2	55.8
World total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

^a United Nations, *Demographic Yearbook* 1956, New York, p. 151.

^b United Nations, *Proceedings of the World Population Conference* 1957, Vol. III, pp. 283-324. The population projections for Europe and Asia were revised to take into account revisions in the population estimates for 1950; Central and South America projection was revised because of more recent population projections for most of that area prepared by the United Nations; national population projections for the United States and Canada were used to revise the population projection for North America.

total of 3,730 million in 1980. The population of Europe over the same period and according to the same estimates may rise from 606 million to 748 million, and would then form a somewhat smaller proportion of the world total than it does at present. Concurrently, the population of North America may rise from 183 million to 270 million, with little, if any, change in its relative importance. A clear majority of all the people in the world now live in Asia, and its percentage of the total may be expected to rise slightly over the next twenty-five years, since its rate of annual growth would appear to be somewhat higher than the world average. The absolute increase to be expected in Asia over the next quarter century is so great that by 1980 that teeming continent alone may have a larger population than the total population of the world in 1930. The rate at which population is growing in Central and South America is higher than anywhere else and its population will probably surpass that of North America sometime within the next decade or two. Population is expected to grow in Africa at a rate close to the world average and its share of the world total is therefore likely to remain fairly constant at about 8 per cent.

b) Currents of Opinion

These last three regions — Asia, Central and South America, and Africa — together include approximately 70 per cent of the world's population. By and large, they are areas that are economically under-developed and it is here that the ferment of one of the great new ideas influencing economic growth is most apparent. It is the idea that all the peoples of the world should be able to benefit from technological change. Some of the under-developed countries have only recently emerged from semi-barbarism. Others have long traditions of civilization but for centuries have lain in lethargy. All of them, however, are passionately of the belief that they must rid themselves of crushing poverty if they are to make the most of their present human resources and of their past accumulations of wisdom. The report of the Commonwealth Consultative Committee that initiated the Colombo Plan, in speaking of the ancient civilizations of South and South East Asia, expressed the determination that these human riches should be liberated from the cloud of poverty so that they might "contribute toward the self-realization of individuals, toward the fulfilment of national aspirations, and toward the enhancement of the lives of other peoples throughout the world. The progress of science and technology has suggested ways in which this may be done; and, in an age when other countries are increasingly reaping the advantages of scientific and industrial advance, the hastening of a similar process in Asia cannot safely be delayed."⁸

The under-developed countries have watched what has been accomplished in the West and, through other methods, in the Soviet Union by

the application of science and technology; and clearly the outcome of the competitive struggle in which we are engaged will be affected not only by military comparisons but also by the comparisons drawn in under-developed areas, first, between our economic progress and stability and what is achieved in the Soviet Union, and, second, between the economic assistance that the two rival systems can make available. For a corollary of the idea that all the peoples of the world should be able to benefit from technological change is that under-developed countries may expect help from countries with more advanced technologies and with a higher standard of living. This is a principle that would seem to be as dangerous to deny as it is difficult to accept. It is difficult to accept because unless the aid is skillfully directed and unless under-developed countries are taking the initiative to create the conditions in which it can be effective, it may result in an almost meaningless dissipation of resources. It is dangerous to deny because under-developed countries that are not assisted by the West may turn elsewhere for assistance or may so lose all hope of economic betterment that they may be prepared to sacrifice the possibilities of political and individual freedom in exchange for an economic system that seems to promise a higher standard of living. Moreover, in a shrunken world the idea of humanity must have wider practical relevance. It may gradually become as unacceptable to the conscience of the West as it is now to the aspirations of the under-developed countries that there should be such gross disparities in human welfare throughout the world. In a remarkably short time the notion that such disparities cannot be tolerated within a single state has been accepted in almost all Western countries. To apply that principle throughout the world will be a much longer and harder task. But the issue has been raised and can hardly be wished away — even if Canadians were so disposed, which we do not for a moment believe.

The problems of economic growth in the under-developed countries are strongly coloured by nationalist sentiments. Many of these countries have only recently emerged from colonial status and believe that colonialism not only retarded improvement in their standards of living but distorted the structure of their economies. Now they are intent on fashioning an economic structure more to their own wishes. Sometimes nationalism may provide the motivation for economic policies in the under-developed countries that may prove more costly in the long run than they are inclined to think and which may twist their economies in one direction as far as they believe them to have been twisted in an opposite way in years gone by. Nationalism certainly also complicates the problem of extending economic aid effectively. But at the same time the achievement of national independence has provided a new opportunity for tackling the problems of economic development in these areas and has supplied new ardour for the attempt.

Not that nationalism anywhere in the world can be considered to be a spent force. Notwithstanding all the new international responsibilities of the United States, the conviction is strong there that the first objective of policy should be to maintain and increase the strength of the United States within its own borders if its new responsibilities are to be successfully fulfilled; and this conviction influences commercial and agricultural policy as well as the recurrent debates on defence. In Western Europe, the historic home of modern nationalism, the ancient panoplies have been hallowed by fresh victories and fresh defeats. National shrines have been sanctified because they became rallying points of resistance to the oppressor. Some Europeans have drawn the conclusion from new weapons, from the large-scale production that modern technology requires, and from the increasing polarization of the world between the United States and the Soviet Union, that larger groupings in Western Europe are necessary. But old traditions — and vested interests — are strong. And others, contemplating the new barbarisms, believe more firmly than ever that the ancient nations in Europe still have their own distinct, civilizing missions to perform. Whatever the reasons may be, it would clearly be mistaken to expect that the colours in any of the national blazons will quickly fade even in the apocalyptic light that modern science has created. Indeed, it may be argued that they are quietly and almost accidentally being restored by one of the effects of modern economic thought.

The idea that society has a responsibility to provide minimum standards of welfare for all its members has been making headway in the West for at least a hundred years; and the idea that the state should assume this responsibility is almost as venerable. Such ideas could hardly produce results of more than marginal charity, indeed could produce little more than a painful discord between mind and conscience, so long as it was believed that, if all artificial obstacles were removed, the automatic working of economic laws would result in the most productive allocation of resources. The flaws in that dogma were first convincingly revealed by Lord Keynes. Examining the flows of expenditure that sustain employment, he detected an inherent probability that situations would recur in which savings would not be put to work to produce all the goods and services of which the economy was capable. The result would be unemployment. The remedy was for those in control of national budgets and national currencies to take deliberate action at such times to increase the flows of expenditure for both consumer and capital goods. In periods when unemployment seemed to threaten, national governments should be prepared to run budgetary deficits. Conversely, in periods when effective demand for goods and services threatened to bid up the general level of prices, governments should budget for a surplus in order to drain off some of the excessive purchasing power. Lord Keynes' analysis also provided sanction for social security measures that would ensure at least minimum flows of expenditure even in times of slack business activity. All this mark-

ed a revolution in economic thought comparable to the revolution in theoretical physics that had been effected by Einstein only a few years previously. Only in this case it was a revolution that enabled man to stand at the centre of the economic orbits and to play with them as though they were his own instead of leaving him as a spark among the expanding nebulae.

It will be seen that one of the secondary effects of this revolution is to enhance the importance of national governments. They alone have control over currencies and can regulate the supply of money at will. They alone have budgets large enough for such budgetary changes as they may introduce to have significant effects on the economy as a whole. And they know that public insistence on the maintenance of high levels of employment is so strong that they would almost certainly be turned out of office if their endeavours were to prove unsuccessful. It may be that in time techniques will be devised for co-ordinating the employment policies of various national governments. Already exploratory efforts in that direction are being made by the United Nations and by the Organization for European Economic Co-operation. But it will be many years before that objective can be realized. In the meantime, the fact that the public in every Western country expects its national government to protect it against widespread unemployment and the fact that the highest level at which such action can be taken is at the level of national policy mean that nationalism has acquired a new justification and a new source of strength.

Admittedly it is too soon to judge how the new theories and the new measures to combat cyclical fluctuations in business activity will survive a major test. It must also be admitted that the new discoveries have raised new problems. In an age of full employment who will be found to do the dirty but necessary work? If government expenditures for desirable public works are to be deferred until there is a serious recession, will they be postponed indefinitely? What can be done to prevent inflation from becoming endemic? But to live and wrestle with these problems may be a small price to pay for deliverance from mass unemployment.

The winds of opinion will continue to blow across our borders carrying seedlings of new promise and new problems. We will also be open to rapid technological change, which will bring new challenges to our industries. We will feel the repercussions of political changes throughout the world and probably will continue to live under the threat of nuclear destruction. The only constant will be the certainty of change. That is a banal enough conclusion. But it may not always be easy to accept the prescription that would seem to follow from it. We will have to keep our minds and policies supple to deal with changing circumstances. We will have to keep our industries flexible so that they may adjust themselves

to changing demand and changing technology. Among the countries of the world we may count ourselves to be particularly fortunate and happy. But it would be folly to forget how deeply involved we are in a wider future. For, to borrow the terms used by Alfred North Whitehead, the world's occasions are all immanent here.

CANADA AND THE UNITED STATES

CANADA AND the United States live in a kind of symbiosis — two organisms separate and distinct, each with its own ends and laws; but highly interdependent, indissolubly sharing the same continental environment and, in spite of a great disproportion in wealth and economic power, each necessary to the other.

How closely the Canadian economy is intermeshed with that of the United States will appear in the following pages. But even the United States, a giant though it is in comparison, with a population 11 times as large as Canada's and a national income 15 times as large, has had reason during recent years to become aware of its need of its northern neighbour. If Canada must rely in large measure on the United States for defence against possible attacks, the United States requires Canadian co-operation for its own security. Simultaneously the United States has become aware that it is now a deficit country for many important raw materials which Canada can supply. Through much of this century the United States has imported nickel, asbestos, wood pulp and newsprint in large volume from Canada. But it was made clear in the report of the President's Materials Policy Commission (the Paley Commission) that the United States now needs to import, in addition, large quantities of iron ore, copper, lead, zinc and petroleum and that its dependence on foreign sources of supply for these raw materials will increase over the next twenty years. In relation to the size of its economy, the United States of course has a much smaller stake in foreign trade than Canada. In 1955, for example, commodity imports accounted for only about 3 per cent of its Gross National Product and commodity exports for only 4 per cent, whereas the comparable percentages for Canada in the same year were both close to 17 per cent. But of all United States imports in that year Canada provided 23 per cent. Not only was Canada the United States' principal supplier; it was also the United States' largest customer, as it has been ever since the end of the War, buying goods in 1955 to a total value of \$3,452 million, or more than all the Latin American countries combined. These facts are known and appreciated by many in Washington, by American exporters who recognize the importance of the Canadian market and by American businessmen who have invested in Canada or who rely heavily on Canadian sources of supply. They are not perhaps fully realized by public opinion in the United States at large. Indeed, it may be unrealistic to expect that

they should be. Few Canadians, on the other hand, can be unaware of the pervasive intimacy of their economic relations with the United States.

Some first sense of how intimate those relations are may be obtained by considering the complications that arise from time to time from the long indenture of the common border. If a submarine cable is to be laid across the Strait of Georgia to transmit electric power to Vancouver Island from the mainland, it may be found that the most direct route lies through United States territory, so that permission must be sought from the Federal Power Commission in Washington. If an outbreak of foot-and-mouth disease necessitates closing the border temporarily to Canadian shipments of livestock, meat, and some other commodities (including hay and straw) in which the virus might be carried, not only are serious problems raised for cattle exporters and meat packers but mining camps in the Yukon are threatened with a stoppage of meat shipments to them across the Alaska Panhandle and farmers in Quebec and New Brunswick are deprived of the supplementary income that they could have earned by driving across the border with a team of horses to cut wood in the lumber camps of Maine and Vermont. It is also at the border that the most vivid sense is to be obtained of the gaps in the Canadian economy and of its dependence on United States output for many parts, components and materials that are not yet produced in Canada. To watch one truckload after another of structural steel beams roll across the bridge at Fort Erie or one freight car after another stacked with automobile body-stampings cross the river at Windsor is to receive an indelible impression of one important way in which the two economies fit together. Nor are the thousands of border crossings that Canadians make every day of the year without wide economic significance. A businessman flying to New York to clinch a deal or to attend a meeting of a trade association; a retired couple driving down to Florida or California to spend the winter; a student entering to take advantage of a fellowship offered by an American university; an expert on his way to a conference of his professional colleagues; such travellers may or may not have American goods to declare on their return but they all bring back with them something of American tastes, standards, customs and ideas. These are also spread with particular thoroughness in Canada by American periodicals, radio, television and films. As a result, there are probably no other two countries in the world that have such a close identity of consumer preference or business psychology.

Even if Canada were in the antipodes, however, we would feel the economic influence of the United States, and Canadian economic analysts would be busily scanning the figures of American steel production, car loadings, housing starts, consumer credit and other indicators for hints of the probable course of business activity in the United States. For the United States has been dominant in the world economy for some three decades. We need not describe here the manner in which it achieved economic

supremacy or the many and varied ramifications of this development. What is pertinent is the overwhelming degree of its industrial superiority. As is pointed out in the study made for us of *Canada-United States Economic Relations*, if the countries within the Communist orbit are omitted from the calculations, the United States produces about half of total world industrial output, generates more than half of world investment, creates about 40 per cent of world money income, and accounts for approximately 16 per cent of international trade. When all due allowance has been made for the hazards of statistical generalizations of this kind, these remain facts of inescapable importance which form part of the framework for any realistic discussion of international economic relations generally and of economic relations between Canada and the United States in particular.¹

There are a number of questions, we suppose, that come to the mind of any Canadian when he thinks of economic relations between the two countries. Is the gap between the standard of living in Canada and in the United States likely to narrow or widen over the next two or three decades? Is the control of Canadian industry likely to fall more and more into American hands? How successful will the United States be in its efforts to master the business cycle? Will Canada become more or less vulnerable to business fluctuations generated in the United States? Will our economic relations with the United States become more or less intimate? To what extent will the rate of Canada's economic growth be determined by economic growth across the border and to what extent will it show some degree of autonomy? To seek answers to these questions we must turn to aggregate statistics and to the main links that mesh the two economies together — links of trade and investment and the institutional links between businesses and trade unions on both sides of the border.

Principal Economics Links

Until a few years after the end of the War the pattern of Canada's trade was triangular. Our imports came predominantly from the United States while our exports went predominantly overseas; and our deficit on current account with the United States was covered not only by capital inflows when the investment climate seemed favourable, but also by the surplus earned through our trade with other parts of the world. Vestiges of that trading pattern are still discernible. It is still true that we buy from the United States more than we sell, while we sell to the United Kingdom, to other sterling area countries and to Western Europe more than we buy, using the net proceeds of our trade with those areas to help meet our deficit with the United States. But our trade is now concentrated so preponderantly on the United States that for most purposes it has ceased to be useful to think of it as being triangular. We cannot afford to neglect any of our export markets. But new trading patterns have been drawn since the end of the War, and the old triangular configuration has been so narrowed as to be almost unrecognizable.

So far as there has been a change in the geographical pattern of Canadian imports, it has been gradual. Since the turn of the century Canada has imported more largely from the United States than from any other country; and the percentage of imports coming from that source has grown slowly but steadily until in 1955 it stood at a little less than 75 per cent of the total. Imports from across the border range from oranges to bulldozers, from coal to cotton textiles. But they are chiefly composed of machinery and equipment, consumer durables, and miscellaneous manufactured consumer goods. It seems likely that the volume of imports of such commodities will increase relatively faster than other items in the total import bill. If that turns out to be the case, we may expect a further increase in the percentage of imports coming from the United States.

The change in the geographical distribution of our exports, on the other hand, has been sudden and extreme. In 1947, as is shown in Table 3.1, the United States took 38 per cent of our merchandise exports, which

Table 3. 1

DESTINATION OF CANADA'S DOMESTIC EXPORTS
(PERCENTAGES OF TOTAL DOMESTIC EXPORTS, EXCLUDING GOLD, TO ALL COUNTRIES EXCEPT NEWFOUNDLAND)

	U.S.	U.K.	Continental Western Europe	Other countries ^a
1937.....	36	38	9	17
1946.....	38	27	12	23
1947.....	38	28	11	23
1948.....	50	23	10	17
1949.....	50	24	8	18
1950.....	65	15	6	14
1951.....	59	16	9	16
1952.....	54	17	10	19
1953.....	59	16	9	16
1954.....	60	17	9	14
1955.....	60	18	8	14

^a Rounded, so that the total equals 100 for each year.

SOURCE: Roger V. Anderson, *The Future of Canada's Export Trade*, 1957, a study for the Commission, Chap. 2, p. 36.

was about the same proportion as in 1928 or 1937. By 1950 the proportion had risen to 65 per cent. The next year it slipped back, but only to 60 per cent, and currently fluctuates around that figure. What happened to produce such a remarkable shift in so short a time? Well, lumber which could not be sold in the United Kingdom because of currency difficulties found a market in the United States. The export controls that, since the early years of the War, had prevented sales of livestock across the border were lifted and meat and cattle to the value of more than \$100 million were exported in 1948. The depreciation of the Canadian dollar to a 10 per cent

discount against the United States dollar in September 1949 provided Canadian exporters with an advantage in the United States market over domestic producers. By 1950 the defence build-up in the United States consequent on the outbreak of war in Korea in June of that year was already under way and was resulting in some defence procurement in Canada. But some of these developments were of a temporary character and none of them goes deep enough to explain the fundamental re-orientation in Canada's export trade that has taken place.

What has happened essentially would seem to be this. The United States has been growing at such a rate that it is now the most productive economy that the world has ever seen and has far outstripped all its rivals in the West. There would seem to be a presumption that such a rapid economic growth would result in a heavier concentration of Canadian exports on that market. That presumption remained unrealized through the 1930's because of the long-continued severity of the depression in the United States and because shortages of base metals and petroleum had not yet developed. The War greatly increased the United States' productive capacity (as it did that of Canada) while it impoverished the countries of Western Europe, so tilting the economic balance of power immensely in favour of North America. But the patterns of trade during the War years were so abnormal that they seemed to offer no guide to what might be expected in the post-war period. For a few years after the War the emerging realities were masked by the substantial credits which Canada extended to many of its European customers, notably the United Kingdom, in an effort to assist in the rehabilitation of the war-torn economies and to maintain traditional markets overseas, and in the hope that a liberal regime of world trade could be restored and the triangular pattern of Canadian trade recreated. But by 1947 the Canadian credits were petering out (although in the following year generous United States grants under the European Recovery Programme were beginning to finance some Canadian exports under the system of off-shore purchasing). At the same time the United Kingdom was undergoing the first of a series of exchange crises after a premature attempt to make sterling convertible, and Canada as well found itself in exchange difficulties because of a combination of heavy investment at home and exporting on credit abroad. The forces that had been latent in the situation then sprang to life. The relative ability of overseas countries to import from Canada was now seen to have been gravely weakened. Concurrently, new markets opened up in the United States, which were fostered by the deliberate efforts of Canadian producers. This redirection of trade was supported by continued high levels of business activity in the United States, by raw materials shortages there, and by the discovery of new resources in Canada. It now shows every sign of being permanent. Indeed, there will probably be a substantial increase over the next two or three decades in the share of Canada's exports moving across the border. This is partly because much of the capital invested in recent years in the

discovery of petroleum and in the development of iron ore has not yet resulted in the flow of exports to the United States that it was intended sooner or later to produce. It is also partly because other exports including, for example, uranium and the non-ferrous metals, which are marketed chiefly in the United States, are likely to grow proportionately more than exports such as wheat, which are marketed chiefly overseas.

If in considering the direction of our exports it is possible to look back and pinpoint a brief period in which occurred a change of lasting importance, in considering United States investment in Canada, we stand rather in the very thick of change. Since the end of the War there has been a great acceleration in United States investment in Canada, which still seems to be continuing. Even in the inter-war period the growth of capital invested in Canada by United States residents was substantial. Until the First World War the chief source of external capital to finance our economic development was the United Kingdom. But so long ago as the early 1920's (as is shown in Table 3.2) investments by United States residents began to exceed those held in the United Kingdom; and in fact United Kingdom investments in Canada have never again reached the peak they attained in 1914, while United States investments have continued to grow. Since

Table 3. 2

FOREIGN CAPITAL INVESTED IN CANADA
SELECTED YEAR ENDS 1900-55
(millions of dollars)

Year	Amounts owned by						Total non-resident investment
	U.K.	%	U.S.	%	Others	%	
1900 ^a	1,050	85	168	14	14	1	1,232
1914 ^b	2,778	72	881	23	178	5	3,837
1918 ^b	2,729	60	1,630	36	177	4	4,536
1926.....	2,637	44	3,196	53	170	3	6,003
1930.....	2,766	36	4,660	61	188	3	7,614
1939.....	2,476	36	4,151	60	286	4	6,913
1945.....	1,750	25	4,990	70	352	5	7,092
1948.....	1,610	22	5,567	74	332	4	7,509
1954.....	2,181	17	9,692	77	704	6	12,577
1955.....	2,347	17	10,289	77	832	6	13,468

^a Estimated by Dr. Jacob Viner, *Canada's Balance of International Indebtedness 1900-1913*, (Cambridge, 1924).

^b Estimated by Professor F. A. Knox in Excursus appearing in Marshall, Southard and Taylor, *Canadian-American Industry*, (New Haven, 1936).

SOURCE: Irving Brecher and S. S. Reisman, *Canada-United States Economic Relations*, 1957, a study for the Commission, Table 16, p. 88.

the last War, however, the increase has been much more rapid. From 1945 to 1955 total capital invested in Canada by United States residents increased from \$4,990 million to \$10,289 million. In other words, United States investment in Canada grew substantially more during that

decade than in the whole period from 1900 to 1945. United States investment in this country now represents some 77 per cent of all the foreign capital invested here as compared with 17 per cent held in the United Kingdom and 6 per cent held elsewhere. Moreover, the growth continues unabated. In 1956 alone, United States capital invested in Canada increased by over \$1,300 million.

Most of the increase since the end of the War has been in the form of direct investment. It represents, that is to say, additional capital invested in branches of United States corporations; or in Canadian subsidiaries either wholly owned by United States parents or at least controlled by them; or in Canadian companies with more than 50 per cent of their capital stock owned across the border, even though there may be no parent concern. In that respect, the present state differs from the United States investments that were made in Canada during the last great period of expansion in the 1920's. Some of the increase during that period took the form of direct investment in the automobile, electrical, aluminum and pulp and paper industries, for example. But a very substantial amount of it was in the form of portfolio investment and was typically directed towards bonds and other fixed interest securities rather than towards equity stock. Of all the increase in United States capital between the end of the War and 1955, only about \$1,000 million or some 20 per cent was in the form of portfolio investment. All the rest was invested directly to expand existing enterprises or to develop new industries; and indeed, since 1945 the United States has accounted for all but some \$800 million of the increase in direct foreign investment in Canada. The growth in direct investment has been motivated for the most part either by a desire to develop additional sources of supply for raw or semi-processed materials or by a desire to open the Canadian market more effectively to products of parent companies in the United States. For that reason it has been concentrated in a comparatively few areas of the economy — in petroleum development, mining and smelting, and manufacturing.

In a later chapter an attempt will be made to set out in some detail the facts about the growth of foreign investment in Canada and to elucidate their implications. Here it may be enough to anticipate a few of the conclusions of that analysis. The increase in United States investment in Canada, accompanied as it has been by new technology and managerial skills, has clearly resulted in a faster rate of economic growth than would otherwise have been possible. At the same time, since it has chiefly taken the form of direct investment, it has led to United States residents acquiring a controlling interest in many of our largest and fastest growing industries. The book value of Canadian companies in which a controlling interest is held in the United States accounted at the beginning of 1955 for 68 per cent of the total investment in the petroleum industry, for 51 per cent in the chemical industry, for 95 per cent in the automobile and parts industry,

and for 45 per cent in the pulp and paper industry; and all these percentages have been increasing. Moreover, since a large part of the increase in direct United States investment has been in branch plants or wholly-owned subsidiaries, and since, further, it has been financed in large measure from retained profits and depreciation allowances, there seems little reason to expect that the current trend towards greater United States control of some of our fastest growing industries is likely to be reversed unless there is a change in present corporate practices or government policies.

The corporate links between the United States and Canadian business enterprises are paralleled by the links between trade unions on both sides of the border. In 1955 there were 1,268,207 trade union members in Canada, and of these slightly more than 70 per cent belonged to unions with international affiliations in the United States.² Indeed, the only Canadian unions of any size that are without such affiliations are the syndicates in the Province of Quebec joined together in the Canadian and Catholic Confederation of Labour;* the Canadian Brotherhood of Railway Employees and Other Transport Workers; some civil service unions; and unions of fishermen on the East and West Coasts. Canadian participation in international unions arose naturally during the period when migratory labour played a more important part in the economy than it does today, and when movement back and forth across the border was easier. It was also natural for Canadian locals, when they were in an early stage of their development, to welcome assistance from organizers from the parent headquarters. Although there are differences in constitution and structure among the various unions that now form the Canadian Labour Congress, perhaps the typical situation is one in which a Canadian sits on the international executive and a Canadian organizer heads the district in which locals in this country are grouped. In almost every case, part of the dues paid are remitted to the account of the international headquarters, which renders a number of services in return and which also reserves the right to approve or disapprove proposed strike action. In most cases new contracts have also to be ratified by the international headquarters, although usually this is little more than a formality and Canadian unions ordinarily enjoy wide latitude in negotiating new contracts. They do, however, often receive advice from officials of the international headquarters in the course of collective bargaining, and in this way United States wage agreements no doubt have some indirect influence on the wage rates and other benefits obtained by Canadian labour. On the other hand, it seems clear that the wages paid in the United States for comparable work would play an important part in labour negotiations in Canada even if Canadian unions had no international affiliations.

* The C.C.C.L., however, has entered negotiations to join the Canadian Labour Congress, which in turn, of course, has fraternal relations with the American Federation of Labor and Congress of Industrial Organization.

Economic Similarities and Differences

These corporate and union links that span the border would ensure that there would be significant similarities between Canada and the United States in economic behaviour, in economic conditions, and in economic growth. But, as has been already suggested, that would be in large measure true even without them. From one point of view the border is an immense plate-glass window through which Canadians look at a profusion of goods of every sort for sale. They also can readily see how Americans live, what comforts they have, what is in their pay packets, and in general, what standard of living they enjoy. More than that, many of the attitudes that have a bearing on economic progress have been shaped by similar historic circumstances in both countries. For both Canada and the United States the conquest of the wilderness represents an heroic age of the recent past, which, in Canada at least, has not yet come to an end. That is perhaps one reason why, insofar as there is a typical United States attitude towards material things, it is shared by many Canadians. Canadians also share with Americans much the same attitude towards the collectivity and the individual. How the typical North American view on this central problem of social organization differs from the approach to it common among the French, say, or the English or the Slavs, would need a nice discrimination to define. Something of its quality, however, may perhaps be suggested by a sentence from an early settler's letter quoted by Frederick James Turner in his classic work on *The Frontier in American History*. "It is a universal rule here", the settler wrote, "to help one another, each one keeping an eye single to his own interest."³ That attitude, strongly coloured by the struggles of pioneer days, is still widely prevalent in Canada as it is in the United States.

What impressed earlier observers of economic conditions in the two countries, however, was not so much the similarities as the differences between them. In 1818 a Presbyterian minister from Scotland who was travelling down the St. Lawrence and had spent the night in Prescott on the Canadian side of the river, had occasion to cross over to Ogdensburg on the American side, and being struck by all the activity there, remarked that "the contrast of apathy and inaction on the one side of the river with bustle and business on the other cannot but be mortifying to one of genuine national feelings".⁴ In 1839, when Lord Durham relinquished his Commission and submitted his *Report on the Affairs of British North America*, he devoted considerable space to the contrasting social and economic conditions of the two countries and reported that they were "the theme of every traveller who visits these countries and who observes on the one side of the line the abundance, and on the other, the scarcity of every sign of material prosperity which thriving agriculture and flourishing cities indicate, and of that civilization which schools and churches testify".⁵ A traveller of genuine national feelings would not be so mortified if he were

to travel down the St. Lawrence today. He would find, we imagine, quite an adequate amount of bustle on the Canadian as well as on the American side of the river as he watched channels being dredged for the Seaway and cement being poured for the power-houses at Barnhart Island. Nor could such discouraging comparisons now be drawn between activity in Montreal and in the cities of Upper New York State as Lord Durham discovered a century ago. Yet it would need no very shrewd observer to notice that Canadians are still not so well off as their neighbours in the United States. They eat steak a little less often; they own fewer cars; they come to work more often with frayed collars. For the fact is that, if Canada has a higher standard of living than any other country in the world except the United States, the gap in this respect between the two countries is still substantial.

Whatever criterion is taken — whether national income per capita or disposable personal income per capita or average weekly earnings — the conclusion seems to be that the Canadian standard of living is from 25 per cent to 30 per cent below that of the United States. None of the relevant statistics (which are shown for 1955 in Table 3.3) are gathered on a strictly comparable basis in the United States and Canada; and the same is true of the various price indices that can be used to reduce them to real terms. Nevertheless, the statistics would seem to be reliable enough to warrant the conclusion that the differential between the standards of living of the two countries falls within the general range that has been indicated.

The Gross National Product is not of course a measure of welfare; but it is perhaps as well to start with it since it is the most familiar, and perhaps the most pertinent, aggregate measure of the economy's output and sets at least an outer limit to the average standard of living that is possible for individual citizens. In 1955 per capita Gross National Product in the United States was \$2,366, while the parallel figure for Canada was \$1,719. Per capita national income in Canada was therefore 27 per cent lower than in the United States. To have some idea of whether a differential of that order of magnitude accurately reflects the comparative ability of residents of the two countries to satisfy their material wants, it is necessary to have some judgment of the comparative purchasing power of the United States and Canadian dollar. None of the price indices compiled in the United States and Canada will provide an answer to that question; but it would seem that in recent years living costs have been much the same in Canada as in the United States. While the costs of basic foodstuffs are lower here, most manufactured foods cost rather more. Consumer durables are also more expensive here, but services cost less. Insofar as it is possible to think of a typical basket of goods and services bought by comparable Canadian and United States consumers, the cost would not differ very widely. Nor would an examination of the prices of

other components that enter into Gross National Expenditure tend to suggest much disparity between the purchasing power of the Canadian and the United States dollar. The price of industrial machinery is substantially higher in Canada than in the United States, while construction costs are about the same. On the other hand, many of the services purchased by governments are cheaper in Canada than across the border.

Table 3.3

COMPARATIVE ECONOMIC POSITION OF CANADA RELATIVE TO THE UNITED STATES IN 1955

Economic indicators	Canada	United States	Canada as a percentage of U.S.
	(1)	(2)	(3)
Population (millions)	15.6	165.2	9.3
Labour force (incl. armed forces) (millions)	5.68	68.9	8.2
Labour force participation rates, labour force as a per cent of population 14+	53.3	58.0	91.9
Gross National Product	<i>Cdn. \$</i>	<i>U.S. \$</i>	
Total 1949 dollars (billions)	21.6	344	6.3
current dollars (billions)	26.8	392	6.8
Per capita 1949 dollars	1,384	2,081	66.5
current dollars	1,719	2,366	72.7
Per worker 1949 dollars	3,801	4,990	76.2
current dollars	4,716	5,673	83.1
Disposable personal income	<i>Cdn. \$</i>	<i>U.S. \$</i>	
Total current dollars (billions)	18.2	270.6	6.7
Per capita current dollars	1,168.7	1,637	71.4
Per worker current dollars	3,206.5	3,927	81.7
Personal consumption expenditures	<i>Cdn. \$</i>	<i>U.S. \$</i>	
Total 1949 dollars (billions)	14.3	226	6.3
current dollars (billions)	16.9	254	6.6
Per capita 1949 dollars	918.3	1,366	67.2
current dollars	1,084	1,537	70.5
Per worker 1949 dollars	2,519.4	3,274	76.9
current dollars	2,975	3,686	80.7
Average hours per week			
Manufacturing — year's average	41.0	40.7	100.7
— selected week	41.5	41.1	101.0
Non-agricultural — private sector	41.3	38.9	106.2
Wage rates — manufacturing	<i>Cdn. ¢.</i>	<i>U.S. ¢.</i>	
Average hourly	144.8	191.0	75.8
	<i>Cdn. \$</i>	<i>U.S. \$</i>	
Average weekly	59.25	76.52	77.4
Output per man-hour (1949 dollars)	<i>Cdn. \$</i>	<i>U.S. \$</i>	
Total private sector — G.N.P.	1.83	2.49	73.3

SOURCE: Irving Brecher and S. S. Reisman, *Canada-United States Economic Relations*, 1957, a study for the Commission, Table 34, p. 224.

With a comparison of per capita disposable personal income, we come closer to figures that have meaning for the average Canadian as he draws his wages or buys the groceries. In 1955 per capita personal disposable income in Canada amounted to \$1,169, which was 29 per cent lower than the parallel figure for the United States of \$1,637. Much the same differential is revealed by a comparison of average weekly earnings in all manufacturing in Canada and the United States. According to information supplied to us by the Department of Labour, average weekly earnings in manufacturing in the United States in 1955 were \$76.52, while in Canada they were \$59.25. In the same year the average hours worked per week in manufacturing industries in the two countries were almost identical. In other words, a Canadian factory worker typically earned from 25 per cent to 30 per cent less than a factory worker in the United States, although working approximately the same number of hours.⁶ Since the end of the War the spread in average weekly earnings has narrowed somewhat. At the same time, Canadian wage earners in the manufacturing industries have improved their relative position in another way, since the average number of hours worked per week in Canada has been falling more rapidly than in the United States.

What are the reasons for the lower standard of living in Canada than in the United States? One can refer to comparative productivity statistics and say that output per man-hour in the private sector of the Canadian economy is substantially lower — perhaps by 25 per cent to 30 per cent. But that is merely to point out that the United States economy as a whole out-performs ours, and to suggest the extent of the difference. Why is it more productive? To answer that question fully, it would be necessary to trace the concurrent and inter-related processes through which the United States and Canadian economies have been formed. Clearly that would be impossible within the compass of a short chapter, even if we were capable of it. But perhaps in one or two paragraphs it may be possible to suggest some of the main differences in the economic evolution of the two countries.

When the colonial period came to an end in the United States, it had a much larger population than was to be found in Canada and they were living in a more clement climate with more abundant, varied and accessible resources. The degree of economic growth that these circumstances made possible attracted labour and capital from Europe and particularly from the British Isles. These in their turn promoted further economic progress, which gradually began to acquire a momentum of its own as settlements moved westward and as industry began to flourish. Increasingly this process created conditions through which it could be perpetuated. Industrial skills were developed. Entrepreneurs found new opportunities, seized them, and gained self-confidence for still further undertakings. A basic network of communications, other public services, and financial

institutions was laid on which further economic development could be built. And the whole process was reinforced and hastened by a protective tariff which led more rapidly to the establishment of new industries than would otherwise have been possible.

Meanwhile, as the American economy through the middle decades of the nineteenth century was beginning to turn on its own spindle,⁷ Canadian economic development was still hesitant and highly colonial in character, being dependent on the export of a comparatively few staple commodities, none of which were essential in terms of the technology of the day or for long indispensable to the countries which imported them. The Canadian economy was stimulated for a while by the Reciprocity Treaty of 1854 with the United States and perhaps even more by the export opportunities provided by the Crimean War and by the American Civil War. But for the most part this expansion was shallow and short-lived. Population grew comparatively slowly. Wheat exports flourished only spasmodically. Many Canadian settlers subsisted as best they could with very narrow markets for their agricultural produce. There was little industrial growth. The contrast between the economic development of the two countries was perhaps at its sharpest during the last three decades of the nineteenth century when the development of the American far west was attracting large flows of capital and immigrants to the United States and leaving Canada in a backwater.⁸ It was only in the opening years of this century, after most of the available land in the United States had been occupied and after methods had been successfully found for farming the Canadian prairies, that capital and immigrants were drawn to Canada in large volume and that the wheels of Canadian economic progress began to take fire from the rapidity of their own motion. Henceforward Canadian economic development was to be promoted rather than retarded by economic development across the border.

Leaving these historical comparisons and turning to things visible today, it seems to us possible to pick out a number of present differences which help to explain why Canadian productivity and Canadian standards of living are lower than those of the United States. Our more rigorous climate is sometimes thought to be largely responsible; and clearly our colder winters provide at least part of the explanation, since they add to the costs of both construction and transportation. But the economic importance nowadays of climatic differences between the two countries is probably less than is ordinarily supposed.⁹ Also of some relevance is the higher proportion of national income spent on transportation in Canada than in the United States, although it would seem that in recent years the relative burden of these national overhead costs has been declining and is now not very much heavier than it is across the border. A more important reason, in our opinion, for lower Canadian productivity and standards of living is to be found in the higher proportion of the Canadian labour force

employed in agriculture. If over-all productivity statistics say little about the reasons why Canada's standard of living is below that of the United States, it is significant that agricultural productivity, although increasing rapidly, is considerably lower than productivity in other sectors of the economy both in the United States and Canada and that in this country the numbers employed in agriculture are proportionately much greater than across the border. In 1955 some 15 per cent of the total Canadian labour force was employed in agriculture, while in the United States agriculture accounted for only about 10 per cent of the total. It also seems true that there is relatively more subsistence farming in Canada, much of it on sub-marginal lands, from which only meagre cash incomes can be drawn. And more generally it may be that, compared with the United States, the Canadian economy has relatively more depressed patches where productivity is low, such as the salt-cod fishery on the Atlantic Coast and the coal mining industry in Cape Breton. Even in sectors of the economy that are roughly comparable with their counterparts in the United States, productivity is substantially lower. This is notably true of secondary manufacturing in Canada, where productivity would seem to be from 35 per cent to 40 per cent lower on the average than in the United States. The reasons for this difference are no doubt complex. But the principal explanation undoubtedly is the small size of the domestic market, which makes it impossible for most Canadian manufacturers producing primarily for it to plan for long runs and so to reap the economies of mass production and specialization in the form of lower unit costs. Because of the need to use more versatile machinery and to adjust it frequently in shifting from one production run to another, most of Canada's secondary manufacturing industries are precluded from having such highly capital intensive operations as their competitors in the United States and from achieving such high levels of output per man-hour.¹⁰

Lines of Division

We have already spoken of the bands that run north and south and loop the two economies together. But there are also highly important bands that run transversely across the continent dividing the two economies. These are the United States and Canadian tariffs. As much as anything else, it is the pattern of production in Canada that they have crystallized which accounts for the differences in average income and standards of living between the two countries.

The importance of the United States tariff for Canada is illustrated by the fact that the occasions on which there have been major reductions in duties on key Canadian commodities are red-letter dates in Canada's economic as well as commercial history and have largely affected the pattern of Canadian industrial production. When, for example, the United States granted free entry to Canadian newsprint in 1911 and to wood

pulp in 1913, it followed almost inevitably that the Canadian pulp and paper industry would concentrate on manufacturing those two commodities to the virtual exclusion of other possible wood products.¹¹ One outstanding feature of the United States tariff — as of the tariff of many other countries — is that it provides for free entry or entry at very low rates of duty for industrial materials in their raw form or in an early stage of processing and imposes progressively higher rates on goods at a more advanced stage of manufacture. Were it not for that fact, it seems highly likely that with access to a continental market, Canada would have been able to produce fine papers economically and export them to the United States; to send a larger percentage of its output of base metals across the border in a more highly refined or fabricated form; and to compete in the United States market with some of the chemicals that can be produced from oil and natural gas. The clearest illustration of the stunting effect of the United States tariff on the growth of Canadian industry is perhaps to be seen on the St. John River between New Brunswick and Maine. At Edmundston on the Canadian side of the border is a plant producing wood pulp. But over the middle of the stream hovers the phantom presence of the United States tariff. So instead of being further processed in Canada, the pulp is piped across the river to be made up in the United States into high-quality paper in another factory belonging to the same company. If the United States tariff had not had such a determining influence on the structure of Canadian production, Canada would make more of the things it can make best and there would be a more productive allocation of resources resulting in a higher income per head.

Inability to secure entry into the United States market for many of the goods that could advantageously be produced here had a bearing on the decision to increase Canadian tariff protection with the National Policy of 1879. But many Canadians of that day were also persuaded that there could not be a separate nation in the northern half of the continent unless deliberate steps were taken to promote the development of domestic manufacturing; to stimulate an east-west movement of trade; and to emulate the complex economic growth, with its wider employment opportunities and circumstances favourable to still further economic advance, that had been watched and envied in the United States.¹² One effect of the Canadian tariff has clearly been to increase the price to Canadians of many commodities on which duties are levied. More broadly, it must be recognized that in the absence of the tariff there would have been a different and more productive allocation of the factors of production in Canada with a consequent increase in real income per capita, although it is more open to question what the effects would have been on the number and variety of employment opportunities, on population growth and on the complex process of economic development.¹³ In any event, no generation of Canadians has been prepared to reverse the basic decision taken in the era of Confederation. There have been continuing arguments about

the proper level of the tariff and about its incidence on particular areas and interests in the country. But, on the whole, Canadians have been willing to pay the price that the tariff exacts in lower average incomes, regarding it as part of the legitimate cost of nationhood.

Differential Rates of Growth — and Future Prospects

Besides the disparity in average real income there is another difference between the two countries that is more flattering to Canadian pride. Over the past thirty years Canada has been growing somewhat faster than the United States. The Canadian birth rate has been higher than across the border; and for this reason and because of the relatively higher flow of immigrants into Canada, population has been increasing more rapidly than in the United States. Between 1926 and 1955 the average compound rate of annual increase of the Canadian population was 1.74 per cent, while the rate in the United States was 1.18 per cent. The Gross National Product has also been growing more rapidly. During the same period the annual average rate of increase in Canada was 3.61 per cent as against 2.94 per cent in the United States. Within this long-term trend three shorter periods may be distinguished: the years from 1926 through 1928, during which there was a Canadian annual rate of growth of more than 7 per cent compared with a rate of less than 2 per cent for the United States; the 1930's, when there was a similar rate of decline in both countries, although slightly less marked in Canada; and the post-war period, when there were high rates of growth in both countries, with the Canadian rate fractionally higher than that of the United States. For the three decades as a whole the comparative position can be summed up in the observation that in 1955 Canada's Gross National Product amounted to 6.3 per cent of that of the United States, whereas in the period from 1926 to 1928 the average was 5.6 per cent.¹⁴ Investment as one of the mainsprings of economic activity provides not only a criterion of current growth but also a basis for gauging potentialities for future expansion. Comparable sources for both Canada and the United States are not available for the whole of this period. However, such information as it has been possible to put together permits a number of generalizations. The most striking fact is that in the two periods of rapid growth since 1926 — the late 1920's and the post-war years — a substantially higher proportion of income was devoted to investment in Canada than in the United States. In addition, investment has increased at a considerably faster rate in Canada and high levels of capital formation have been sustained more consistently in this country, particularly in the past decade. This recent period is of special interest because of its greater relevance for future economic expansion. Between 1946 and 1955 Canada devoted on the average about 18 per cent of its Gross National Expenditure to gross private domestic investment (excluding inventories) while the comparable figure for the United States was about 14 per cent. During this same

period capital outlays in Canada increased from \$1.9 billion to \$4 billion (measured in constant 1949 dollars) or by 115 per cent; for the United States, by contrast, the increase was from \$24.6 billion to \$43 billion (measured in constant 1947 dollars) or 75 per cent.

There can thus be a differential between the rate of growth of the Canadian and the United States economies. But care should be taken not to draw too large conclusions from that fact. As is indicated by the trade and investment figures cited earlier in this chapter, Canada's economic growth is closely tied in to the American grid; and it is inconceivable, for example, that there could be rapid expansion here with the United States economy stagnant, although the rates of growth can certainly differ. Without Canadian enterprise, the stability of Canadian institutions, the possession of natural resources that are in wide demand, a high birth rate and substantial immigration, our economic growth would not have been so remarkable. But on the other hand, much of the liveliness in the air comes from our being next door to a huge productive machine revolving in a field highly charged with technical skill and the appetite for innovation. That is the dynamo that supplies much of the current to make our atmosphere crackle.

The capacity of the United States economy will continue to expand and although there will continue to be fluctuations in business activity that may sometimes be of a relatively serious kind, it seems reasonable to anticipate that, given good luck and the degree of good management in the United States that we expect, it will operate much of the time at close to peak loads. Without expectations of that kind we could not be so optimistic about Canada's economic future as our projections suggest. No precise inference, however, should be drawn from a comparison of our forecasts with those that have been made for the United States. According to the latest estimates prepared by the Bureau of the Census in Washington, the population of the United States in 1975 is expected to range between 207 million and 229 million people. The projections made for the Paley Commission of the anticipated growth of Gross National Product are the only estimates of output that look so far into the future. But they were based on earlier Bureau of the Census population figures that have subsequently been revised upwards. If they are arbitrarily increased by 10 per cent (as seems reasonable) to make allowances for changes in the population data, Gross National Product in the United States might increase from \$391 billion in 1955 to \$705 billion in 1975 in constant dollar terms. Projected growth of that order of magnitude is one of the important grounds for our confidence in the future growth of the Canadian economy. The only comparative judgment we would care to hazard is that there seems little reason why the Canadian economy should not continue to grow at least as rapidly as the American.

We are more hesitant about guessing whether the gap in living standards between Canada and the United States is likely to narrow or increase, since any judgment on that point must depend on highly fallible comparisons of output per man-hour in the two countries. However, such statistical data as we have been able to develop would seem to suggest that productivity in the private sector of the economy has been increasing somewhat more rapidly in Canada than in the United States. If that is true and if such a trend persists, the gap in average incomes and standards of living should decrease. An expectation of that sort would be supported by the higher level of capital investment that has been taking place in Canada, much of which has not yet resulted in higher output per man-hour. Further justification for it could also be found in the trend towards a relatively lower volume of imports reflecting some improvement in the competitive position of Canadian secondary manufacturing industries, a number of which now seem able to produce at costs closer to those prevailing in the United States. On the other hand, such optimism could be falsified if technological changes of a revolutionary kind requiring production on a scale too large to be economical in Canada were to be introduced in the United States.

The Canadian economic growth that has taken place since the end of the War has been more rapid than that during any period of comparable length in our history; and it has been considerably more sound and balanced than the growth that occurred during the inter-war years. Here would seem to be one important explanation of why we have been becoming slightly less sensitive to cyclical downswings in business conditions across the border. That there has been such a trend, at least since 1929, is suggested by the examination that has been made for us of all significant fluctuations in the United States since the end of the First World War and of their effects on our economy.¹⁵

Even if Canada were completely insulated from the United States, the large amount of capital per unit of output needed by many of our industries, our high levels of income and savings, and our large personal expenditures on consumer durables would mean that the Canadian economy would be capable of generating quite respectable fluctuations of its own without any outside assistance. It can also be sensibly affected by tremors coming from Western Europe rather than North America. But normally these are hardly more than overtones. For our economy, the dominant modulations are those coming from across the border. We have long been highly sensitive to changes in business conditions in the United States; and we will continue to be. But the evidence suggests that our degree of sensitivity may be slightly diminishing.

That might seem paradoxical in view of the increasingly close relations between the two economies that have developed over the past twenty-five years. One explanation appears to be that the Canadian economy, growing,

as it has been, at a rapid and steady pace in recent years, has acquired a resilience of its own that has made it somewhat less susceptible of being thrown off balance by recessions originating in the United States. Another reason for the slightly reduced vulnerability of the Canadian economy, of course, is that it is now stabilized by such measures as a progressive pay-as-you-go personal income tax, unemployment insurance, old age security and assistance payments, and family allowances. Some of these measures involve variable receipts and expenditures and have an automatically contra-cyclical effect; all of them serve to support effective demand in periods of slackened business activity. Furthermore, the effectiveness of monetary and budgetary policy to moderate cyclical fluctuations has been enhanced by the absolute growth and increasing diversification of the economy, so that a relatively wider area is receptive to interventions by the Federal Government. If, for example, foreign investment, especially from the United States, has been mounting phenomenally, it nevertheless forms a smaller percentage of gross domestic investment than it did twenty-five years ago. Similarly, foreign trade is now a smaller percentage of Gross National Expenditure; and since the effects of United States recessions are usually felt widely throughout the world, that falling ratio may be as important for an understanding of our apparently somewhat reduced sensitivity to cyclical movements in the United States as the ratio (which has remained almost constant over the last quarter century) of our exports across the border to our total output. In other words, although the links that join the two economies and that transmit American business fluctuations to Canada have greatly increased, there has been at the same time an immense growth in the Canadian economy and a growth, it would seem, of a more healthy and balanced kind than occurred during the last great period of expansion in the 1920's. At the same time the commodity composition of our imports has been swinging towards a higher proportion of durable and investment goods, which show a more marked downward response to the influence of recessions; and this trend has also contributed towards dampening somewhat the transmission to Canada of United States fluctuations. These facts, together with greater knowledge of how the economy can be stabilized, would seem to be the principal reasons why we may now be a little less vulnerable to shocks reaching us from the United States.

We are also disposed to accept the view that this modest trend is likely to continue. That judgment is based on the expectation that over the next two or three decades the relative importance to the economy of foreign trade and foreign investment will gradually decline. It also depends on confidence that with experience the touch and timing of those responsible in Canada for trying to maintain high levels of employment while avoiding inflation will become increasingly sure and deft.

All this applies, however, to comparatively shallow downswings of the kind that were experienced in 1953 or 1949. A major United States

depression would still have devastating consequences for Canada, although no doubt more effective measures would now be taken to shelter us in some degree from its full impact than were taken, or even seemed possible, in the 1930's. But, in our opinion it would be wrong for Canadians or others to brood too much over that contingency. For the purpose of making economic projections we have found it necessary to assume that a major United States depression can be avoided. That is more than a necessary assumption, though. We believe there are good grounds for thinking it may well be justified. The United States of today in its institutions, its tax structure, its business and social philosophy, is very different from the country that hurtled to depression in 1929. Its banks and stock exchanges are much more carefully regulated and supervised; mortgage lending is more widely guaranteed; it has a system of social security and unemployment insurance which has wide coverage and important stabilizing effects; both the two major political parties have shown that they accept in practice the body of doctrine designed to moderate fluctuations in the business cycle; and efficient arrangements have been made within the United States Government and the Federal Reserve System to keep the state of the economy under constant scrutiny and to bring to bear upon it such influence as may be exerted by deliberate contra-cyclical measures. Full-employment policy is an art of blunt instruments. Only its practitioners perhaps fully appreciate how blunt the instruments are and how much skill is required if they are to be used effectively. But the experts charged with such responsibilities in the United States, aided as they are by particularly full and prompt statistics, would seem to be as skilful and successful as any in the world, although their task is complicated by having to be carried out within a government of deliberately divided powers. Yet, of course, there can be no final assurance that there will never again be a major depression in the United States. If there were, Canada's economic growth would be arrested, even though it might be hoped that measures would be taken to muffle the shock and thus protect the citizens of this country from the worst of the waste and misery that would result.

Leaving that dire possibility aside, we find it easy to visualize a prospect over the next two or three decades in which the Canadian economy would continue to grow at least as fast as the American, in which the spread between standards of living on one side of the border and the other would narrow a little, and in which the Canadian economy would become slightly less vulnerable to United States recessions.

Yet the disproportion between the two countries in size and wealth and economic power would be almost as great as it is today, and the network of economic ties between them would be even more closely knit. In such circumstances, it is perhaps only natural that by far the smaller of the two organisms, living together to their mutual benefit, should feel that there are risks to its integrity involved in the relationship. We would

venture only two general suggestions. Such economic problems as may arise from time to time between the two countries would be eased, in our opinion, if more Americans could remember to think of Canada, not as a hinterland, but as a country. Canadians, for their part, while taking such action as may be necessary to provide the economic basis for the nation they are building in the northern half of the continent, would do well to recognize how much they have profited from having as neighbours a people so productive, so ingenious and so capable of magnanimity.

THE PROSPECTS FOR WORLD TRADE

SINCE CANADA'S prosperity will continue to depend in great, although gradually diminishing, degree on its foreign trade, we have felt obliged to speculate a little about the future of world trade as a preliminary to considering in later chapters the market prospects for our principal export commodities.

As we have seen in Chapter 2, a very large increase in world population is anticipated over the next two or three decades. At the same time it may be expected that most national governments will remain determined to stabilize employment at high levels and that the under-developed countries of the world will be actively furthering their own economic development. For these reasons there is a presumption that there will be need in many parts of the world for many of the commodities that Canada has to sell. In some countries population growth may inhibit a rise in economic activity. But in many countries of the world and for considerable periods of time we believe that one or other of the three factors that we have mentioned will be working, either separately or together, to produce high levels of economic activity and to create requirements for industrial raw materials, including minerals, chemicals and forest products. Although the volume of world trade has not been keeping pace with the growth in output throughout the world, it has been increasing at about the same rapid rate as industrial production.¹ We believe that trend will continue. Similarly, inputs of raw materials have not been keeping pace with the output of finished goods; but nevertheless total raw material requirements have been rising rapidly.² Here again is a trend that we expect to persist. There is also a marked correlation between national income per capita and consumption per capita of many mineral and wood products. With the progress of economic development throughout the world and with increasing population, there should therefore be need for larger quantities of many of the commodities that Canada has to export.

However, it does not necessarily follow that such needs will be converted into effective demand for Canadian products, even when they are fully competitive. Would-be customers may be prevented from buying the goods we have to offer either because of trade or exchange restrictions or because the communities in which they find themselves, whether imposing restrictions or not, are unable to afford what they would like to import. To form some idea, therefore, of the future of our foreign trade it is necessary to

consider how dense is likely to be the thicket of trade and currency restrictions of all kinds over the next twenty-five years throughout the world. Some consideration, however brief, must also be given to what is likely to be the structure of international trade and to the probable terms of trade between manufactured goods and primary products.

Canada's Interest in World Trade

Judgments on all these matters are obviously difficult to make since they involve a tissue of both political and economic considerations, and nothing like finality is possible. But it is important to have some views about them since so much of Canada's productive capacity has been developed to meet the requirements of world trade. It is true that much of the pattern of Canadian production was shaped at a time when the United States, as well as Canada, was maintaining substantial tariff walls; that the traditional markets for some of our important commodities have been determined by international market-sharing agreements; that more recently much new production has been developed by United States corporations for their own use; and that the roots of some of our industries reach back to the mercantilist period. Yet, to a large extent Canada's productive capacity was developed to meet world requirements at a time when world trade was exceptionally free from restrictions. The classic example is Prairie wheat production. But many other commodities produced in Canada have been sold in virtually every country around the world. In Chapter 3 we have stressed the great and growing importance of the United States market to Canada. It is well to bear in mind, though, that for some commodities overseas markets are still pre-eminent.³ In 1955, for example, overseas countries took 97 per cent of our exports of wheat and wheat flour and 96 per cent of our exports of automobiles and trucks and parts. Overseas markets also accounted for between 60 per cent and 70 per cent of 1955 exports of aluminum, coarse grains, non-farm machinery, chemicals (including synthetic rubber but excluding fertilizers and uranium), engines and boilers, and electrical apparatus. In addition, over half of our 1955 exports of copper and lead went overseas. By far our principal overseas market is, of course, the United Kingdom.

It has therefore been very much in Canada's interest to try to create the conditions in which our exports could find relatively free access to world markets. Our goal has been — and should continue to be — the establishment of a world trading system where quantitative import restrictions would either be eliminated or used only very sparingly (since such restrictions are more arbitrary and absolute in their effects than tariffs), where international settlements would be made multilaterally, where currencies would be freely convertible, and where national governments would rely solely on moderate tariffs to promote such degree of diversification in their economies as they might consider desirable. In such a world each

country would come close to concentrating on producing those goods and services which it could produce best, with resulting gains in national income per capita. For, in much the same way as an individual tends to maximize his personal income by concentrating on what he can do best, so a nation tends to maximize its national income per capita by exploiting to the full those lines of production in which it has a comparative advantage and by leaving others to make commodities which it can produce only at comparatively higher cost. That is a principle of general application, but it is of particular relevance for Canada since so much of our production has been built up on the assumption that other countries will recognize its validity and act accordingly. The advantage of multilateral trade for Canada, as for other countries, is that it avoids the necessity of balancing our accounts with each other country separately and permits us to profit from buying in the cheapest markets and selling in the dearest. The advantage of convertibility is that it enables such multilateral settlements to be effected smoothly. All these truths we hold to be self-evident.

In present circumstances, however, it may be of less practical importance to specify the exact degree to which Canadian economic growth has been geared to world trade and the exact degree to which we would benefit from the establishment of a liberal system of world trade than to stress a grosser truth. It is this. If by misadventure the progress towards freer trade that has been made since the end of the War were to be reversed and the world were to enter on a downward spiral of such beggar-your-neighbour policies as competitive increases in tariffs or in other trade or exchange restrictions, Canada would stand to lose at least as much as any country in the world. That was tried during the '30's and the result was only to compound the difficulties that had been created by the world-wide collapse of effective demand.

On the other hand, it cannot be assumed that we are so much the darlings of fortune that, merely because the establishment of a liberal trading system would be in our interest, it is bound to come about. At its hey-day during the latter half of the nineteenth century and the first decade of the twentieth century, such a system virtually covered the globe. The United Kingdom stood at its centre, both importing and exporting heavily, supplying in addition large exports of capital, and lacing the whole system together with the filaments of a world-wide network of banking, insurance and shipping services. Since then, however, the system has suffered major defections and serious fragmentation. It was shaken to its foundations by the hyperbolic sacrifices demanded of all the European participants in the First World War. Russia underwent a revolution which virtually withdrew it from world trade and has subsequently become the centre of an economic empire stretching from Berlin to Vladivostok in which trade is conducted on very different principles. The effects on the trading position and trade policies of the countries of Western Europe were not so dramatic; but the conflict so accelerated changes in their economic relations that the

mechanisms of the nineteenth century system had great difficulty in making the necessary adjustments. By the end of the '20's, however, liberal trading arrangements seemed, at least on the surface, to have weathered the storm. Then came the Great Depression and with it higher tariffs, quota restrictions, bilateral trade agreements, and competitive devaluations. The Second World War saw further grievous disinvestment in the United Kingdom and other countries in Western Europe and a further drastic change in the balance of economic power throughout the world. It also saw the transformation of the sterling area from a loose arrangement of countries who found it convenient to hold their reserves in London, as well as to borrow there, into a much tighter institution in which the effects of the central dollar pool were reinforced by exchange restrictions and co-ordinated policies of import control. Since the end of the War progress has been made in dismantling these and other exchange and trade restrictions. But at the same time the achievement of independence by a large number of countries in Asia has sharply altered some old trading patterns and has led to new restrictions, while in many parts of the world there has been pressure for regional trading arrangements which may prove highly discriminatory in effect. What are the chances that all these pieces can be put together into a world system in which trade will take place with a minimum of interference?

What Are the Prospects for Freer Trade?

The oracles come only in the rustling of leaves and are highly equivocal. Take one of the principal prevailing breezes — the primacy in the economic policy of most governments of maintaining high levels of employment. What is its effect likely to be on commercial policy throughout the world? On the one hand, it is clear that barriers to trade are more likely to be reduced when employment and incomes are buoyant than when any considerable number of people are out of work; and it may be that when the major trading countries have had longer experience with conditions of full employment and have even greater confidence in their continuance, it may prove easier to make further advances towards freer trade. On the other hand, as has been pointed out by the author of the study prepared for us on *The Future of Canada's Export Trade*, if national governments are deliberately and artificially sustaining levels of income and employment in their own countries, they may be reluctant to see any considerable part of the benefits of such policies go to foreign suppliers.⁴ This would certainly seem to be true insofar as a down-turn in activity was being combatted by substantially increased government spending, but it might also prove to be true of exceptional government action through other budgetary and monetary means. Moreover, there is a constant risk that the pursuit of high levels of employment may result in inflation leading to an increased volume of imports which governments might find it expedient to curb by new import restrictions. Indeed, it may have to be

admitted that, for political reasons, there is more likelihood that some governments would prefer to retain some quota restrictions rather than take the final anti-inflationary measures that would make them unnecessary. It is also possible that one of the effects of full employment on public opinion may be to make the higher domestic costs that flow from protective measures seem relatively unimportant and relatively easy to absorb. Since, in any case, the benefits to be expected from freer trade are impossible to quantify exactly, they may seem to be reckoned only in pennies, whereas the gains to be had from a successful full-employment policy or from rapid technological advance may seem to be reckoned in pounds. The gains from freer trade would still be real and tangible but the scale on which they would be measured might make them seem relatively unimportant. Even if that were the tacit inference drawn by public opinion, we doubt whether national governments, remembering the experience of the '30's, would be rash enough to regard general increases in trade barriers as a permissible means of trying to implement their full-employment policies. But it may be that such an inference may sap enthusiasm for further advances towards freer trade. On balance, then, it seems to us that, while full employment itself should be favourable to moves in a liberal direction, the deliberate pursuit of full-employment policies and the fact that the highest level at which they can be implemented is at the level of national policy, may operate against rapid further progress to remove trade restrictions.

We moisten our fingers again and try the direction of another wind. What will likely be the angle of incidence to commercial policy of the determination of under-developed countries to promote their own economic development? Here again the answer would seem to be equivocal. Like others, the under-developed countries have an interest in purchasing their imports as advantageously as possible and in allocating their resources to the most productive ends; and in recent international negotiations they have shown increased awareness of this. But they can hardly accept the proposition that their production should be restricted to subsistence agriculture and a limited number of plantation crops such as cocoa, rubber, jute, tea, coffee, as has been the lot of many of them in the past. They are the more reluctant to accept this role in view of the wide fluctuations there have been in the prices of primary commodities, even since the end of the War, when levels of employment and demand in the industrialized countries of the world have been high. Such a pattern of production is associated in their minds with a colonial status and they regard some measure of industrialization as an indispensable attribute of new national prestige. In many cases their desire to promote the establishment of domestic manufacturing industries is supported by the more concrete argument that without such industries there will not be employment for the surplus labour on the land which will be increasingly shaken free by the improvements in agricultural technology they are trying to popularize. For these reasons

under-developed countries may be expected, even over the course of the next two or three decades, to remain unwilling to dispense entirely with protective devices to encourage the new industries that they wish to establish.

It has long been acknowledged that a case can be made for imposing tariff restrictions to promote the growth of infant industries. It might be argued that by the use of moderate tariffs alone the under-developed countries should be able to achieve the objectives they have in mind. But many of them are finding it difficult to sustain the pace of economic development that they consider desirable without generating some inflation. The pressures that this creates for excessive imports may, in some cases, be kept in check by monetary and budgetary measures. But it is more difficult for such policies to be successful in countries where financial and tax-gathering systems are comparatively rudimentary; and as we know, even countries with highly developed financial and fiscal systems have found the task of restraining inflation almost too much for them. Some of the under-developed countries also have to deal with another complication which tends to make fiscal measures inadequate as a means for curtailing imports. This is the fact that wealth is so unevenly distributed that sales, or excise, or other taxes can hardly be relied on to prevent those with large accumulations of wealth from making use of scarce exchange resources to purchase luxury consumer imports, which the developing economy with its needs for capital goods can hardly afford. There are therefore a number of reasons why the under-developed countries are likely to be slow in dispensing with quota restrictions and currency controls.

Although they have a genuine interest in freer world trade, we anticipate that the special problems of the under-developed countries will necessitate the maintenance of substantial tariff and other barriers to trade and that these in the aggregate will put a brake on world progress towards a more liberal trading system. We would suggest that one way in which the more highly industrialized countries of the West could help them to identify their own interest more clearly with programmes for trade liberalization would be by paying more attention to the problem of stabilizing commodity prices. We realize that there are great difficulties in the way and that the problems involved vary from commodity to commodity. But we believe that time and effort spent in trying to solve them would be well worth while.

Defence considerations, we believe, will also cut both ways. World trade over the next twenty-five years may well resemble the state of the Mediterranean from the seventh to the eleventh century, when Christendom and Islam were living in competition and intermittent conflict, with part of its waters having fallen under the domination of the Saracens while the rest was controlled by the Byzantine and Venetian galleys, with some territories such as Sicily shifting from side to side, and with the whole area subject to piratical incursions.⁵ There may be halcyon periods when trade between

the Soviet bloc and the rest of the world will be conducted primarily on commercial grounds. But Soviet trade will never be unaffected by strategic considerations and may often be deliberately disruptive and piratical in intention. Canadian producers, for example, may have to face the dumping in third markets of such commodities produced within the Soviet bloc as lumber, asbestos, coarse grains and salmon. Those directing Soviet trade may also think it worth while for political reasons to purchase such surpluses as may not be marketable throughout the free world. And at the same time as they are using such disruptive economic tactics they will, in all probability, be maintaining an atmosphere of tension by attempts at subversion and threats of military aggression under the overhanging threat of nuclear annihilation.

In a situation of this kind it will always be easy for countries outside the Soviet bloc to believe that their own security is to be found at home and is best furthered by policies of increased self-sufficiency. There will be a temptation to forget that what is being tested is no less than the vigour and resiliency of free societies and that, in such times, the continuance of comparatively inefficient production may be an expensive luxury. It may also be tempting to rest in the presumption that, during some emergencies, it would prove valuable to have assured domestic sources of supply for the production of military equipment and to overlook the equally valid consideration that, in the case of a thermo-nuclear war (where the initial impact would probably be decisive), it might be irrelevant whether a nation had industrial stand-by capacity available or not.

On the whole, it seems to us that in recent years the net effect of defence arguments has been to make progress towards freer trade more difficult. That tendency was evident, for example, in the action of the United States Congress in attaching a defence amendment to the Trade Agreements Extension Act of 1955. On the other hand, the Executive Branch of the United States Government has never been unaware that, in a world of siege-warfare, sortie and alliance, the trade problems of its allies and friends cannot be regarded with indifference. If they are prevented by trade restrictions from selling in their traditional markets, they may turn in exasperation elsewhere, form new trading links and eventually be detached from their association with the free world, or, alternatively, as a result of trade stagnation, embrace a totalitarian form of government and economic organization. The importance of freer trade policies as a means of preventing defections to the Soviet bloc will become increasingly recognized, in our opinion. Indeed, we would expect it to be one of the principal motives for a new movement towards freer trade whenever such an initiative can be launched. But it is apparent that it may take some time for this logic to prevail.

Of the forces at work in the world today, there is one that we are sure will be far from equivocal in its effects upon commercial policy. It is the

world-wide pressure to sustain the incomes of agricultural producers and to protect them from foreign competition either by subsidy payments or import restrictions or both. Defence preoccupations have played a part in helping to create this pressure. We need not agree, for example, with all the details of the United Kingdom's agricultural policy to have some sympathy with its desire, after suffering from submarine warfare twice in a generation, to raise domestic wheat production above the levels that would be achieved if economic forces alone were allowed to determine output. The responsibility of governments to protect their people from starvation is far older than any of the responsibilities they have assumed in recent years to maintain full employment or to promote economic development. It is therefore also natural that in many of the under-developed countries, where local or general famine has long been endemic, governments should have decided to give a high priority to programmes for increasing agricultural production and in particular should have concentrated on raising the output of grain, which yields a higher calorie content per acre than any other foodstuff. We believe that all these variously motivated programmes to make individual countries more self-sufficient in wheat and other grains will operate to limit the quantity of cereals entering world trade over the next twenty-five years and will tend to depress the international price of wheat relative to that of other commodities.

But there is no need to go so far afield for examples of agricultural protectionism. New Zealand butter producers could testify to how effective, albeit informal, have been the arrangements over the years for excluding New Zealand butter from the Canadian market except at times when it was convenient to have it as a supplement to Canadian production; and more recently embargoes have been placed on the importation into Canada of cheddar cheese, turkeys and fowl, and dried skim milk. Across the border, protection of United States farmers from foreign competition has been much more systematic and thorough. When the Agricultural Adjustment Act was passed in 1933, with the objective of raising the relative prices of major agricultural commodities, it was realized that whenever such prices were supported at levels substantially higher than those current elsewhere, there would be an added inducement for foreign producers to export to the United States. For that reason it was provided in Section 22 of the Act that whenever foreign imports were interfering or threatening to interfere with the purposes of the legislation, they should be curtailed by special fees or by quantitative restrictions. Under this section, imports of milling wheat, wheat flour, dairy products, and flaxseed and linseed oil have been restricted for an indefinite period; and the section has also been used to impose temporary restrictions on rye, oats and barley. The damage done to Canadian interests by the use made of Section 22 should not be exaggerated, since some of the commodities affected have not normally moved in volume to the United States market, and since, in other cases, the size of the quota has been comparatively generous. On each occasion that

Section 22 has been invoked, however, an arbitrary limitation has been placed on Canadian trade with the United States, and the Canadian Government has protested vigorously.⁶

At the same time as United States agricultural policy has necessitated the application of special import restrictions, it has also resulted in large accumulated surpluses of agricultural commodities in the hands of the Federal Government, although exceptionally favourable weather conditions during the past decade have also contributed to this embarrassment. As these surpluses have mounted, legislation has been introduced to help in disposing of them overseas. Under the terms of successive Mutual Security Acts and of the Agricultural Trade Development and Assistance Act, United States surpluses have been given away for purposes of relief, bartered for strategic commodities, and sold for local currencies, which in turn have been devoted to a number of ends lying outside the field of ordinary commercial enterprise. Unquestionably these programmes have deprived the Canadian Wheat Board of some sales it would otherwise have made.

The burden on the United States Treasury of subsidizing United States agriculture at the levels that have currently been in force, and even of meeting the carrying charges on the accumulated surpluses, has led to pressure for modifications in the price support programme to avoid perpetuating the present situation. It has also been increasingly realized that the present high and rigid price supports are distorting the pattern of United States production and are standing in the way of an adjustment of supply to demand. These considerations, together with the difficulty of disposing of agricultural surpluses overseas without disrupting normal channels of trade, have all had a part in persuading many in the United States that some change in its agricultural policy is needed. So far this movement has met with comparatively little success. Over a longer period of time, however, we would expect it to make some headway. With some modification of present policies, it is at least possible to imagine that before many years have passed, present surpluses may have been worked off and no new accumulations be imminent; that overseas disposals by the United States Government may be limited more genuinely to whatever may be needed for the purposes of relief and whatever can be used to promote the development of under-developed countries; and that less recourse may have to be made to Section 22 of the Agricultural Adjustment Act. But that section could hardly be repealed unless the United States were to adopt an entirely different method of supporting farm incomes; and although such a shift may come about, it can hardly be counted on. Moreover, Section 22 has now been sanctified by a waiver under the General Agreement on Tariffs and Trade legitimizing action taken under it in the past and any that may be taken in the future. This waiver has made it more difficult to oppose appeals from other countries for special protection against agri-

cultural imports and indeed has weakened the position of the United States in resisting protective pressures generally within the GATT forum. This is an illustration of how agricultural protectionism has operated to check progress towards freer trade. Over the next twenty-five years we would not expect its force to be diminished or its influence on other areas of commercial policy to be easily muffled.

These are some of the forces that are in the field. The king's horsemen are pulling in different directions and it will take generalship of a high order to so discipline them that it may become possible to re-establish a liberal regime of world trade. But if Humpty Dumpty can be put together again, it will be a different Humpty Dumpty that will sit on the wall.

It will be different, for one reason, because economic adjustments do not now — and in our opinion never will again — operate with the same degree of automaticity as was postulated and to a considerable extent realized in the nineteenth century. Internal markets often present a scene of highly imperfect competition with comparatively few large firms dominating whole sectors of industrial activity so that prices do not necessarily respond freely to changing circumstances. At the same time, business, labour and farm groups are highly organized and negotiations among these various economic groups — and with the government — often prevent any automatic transfer of the factors of production from one activity to another. It may well be that all these corporate interests will increasingly recognize the desirability of leaving wide latitude to the price mechanism to facilitate economic adjustments so that the economy will remain flexible. But flexibility is not the same as automaticity; and we would not expect the latter to regain its old ascendancy in domestic economic affairs. The new institutional arrangements to which we have referred are one explanation of this view. Another is to be found in the increased scope everywhere of government intervention in the economy, which has added a good deal of cushioning to the billiard-ball Newtonian world of the nineteenth century. Nor would we expect international equilibrating mechanisms ever again to work so automatically as they did throughout the hey-day of free trade. We cannot discern in any country a desire to return to the automatic discipline imposed by the gold standard, involving as it did from time to time long bouts of deflation and widespread unemployment. Such conditions would not be tolerated today by any government that could avoid them. Before the First World War they were made only barely tolerable by the possibility of unregulated large-scale migration and by international movements of private capital, lured abroad by the prospects of higher profits. But nowadays the flow of migrants is highly supervised and entry to most countries highly restricted. Private capital movements have also declined in importance, with portfolio investments showing a greater relative decline than direct investment; and capital movements of the latter type are ordinarily motivated not so much by differences in interest rates as by such other considerations as the need to develop foreign sources of supply.

Another reason why a liberal trade regime, if it can be re-established, will be different from any that has been known hitherto, is to be found in the difference between the position of the United States, which is by far the most important economic and trading power in the world nowadays, and that of the United Kingdom during the nineteenth century. The United Kingdom was a maritime power with many colonial possessions, needing to import large quantities of foodstuffs for its people and raw materials for its industrial plant, and trading throughout the seven seas, over which the Royal Navy enforced the Pax Britannica. The United States is fundamentally a continental power, still largely self-sufficient, with foreign trade small in proportion to its total output and thus barely conscious of any need to trade or invest abroad. For this reason the United States dollar has not supplanted sterling (in which approximately 50 per cent of the world trade is still conducted) as an international currency. Nor have the capital markets in New York achieved the dominant international position formerly held by the City of London. Indeed, private United States lending is still, in the aggregate, of modest proportions, although of course it is of great importance for Latin America and for those countries in the Middle East which have large oil resources, as well as for Canada. But as a means of financing the large United States surplus earned through the commercial exchange of goods and services with other countries, it is far surpassed by government transfers of various kinds. In 1955, for example, the net outflow of private capital from the United States amounted to not much more than \$1 billion, while military expenditures in foreign countries by the United States Government for the construction of bases, troop pay, and other purposes, amounted to almost \$3 billion, and grants for economic assistance totalled almost \$2 billion.⁷ It was these outflows of government funds that were chiefly responsible in every year from 1950 to 1956 for some net increase in other countries' reserves of gold and United States dollars as a result of their transactions with the United States.⁸ These payments of United States dollars are sometimes referred to as "extraordinary". But since they form such an intrinsic part of United States foreign policy and supply such an essential lubricant for trade throughout the free world, it is difficult to imagine them suddenly coming to an end.

Private foreign investment has been so important for Canadian economic growth that it would be easy for us to overlook how, in the world at large, flows of private capital have dwindled in importance in comparison with other international transfers and how comparatively minor a role they now play in maintaining international equilibrium.⁹ In most countries of the world outside North America even domestic investment decisions are more frequently either subject to government control or overtly influenced by considerations of public policy than is the case in the United States or Canada. Such decisions may be made, for example, with a view to implementing national plans for industrial development or

achieving a variety of regional objectives or creating new productive capacity that would result either in a reduction of dollar imports or an expansion of dollar exports. It is therefore not unnatural that international capital transfers, meshing as they must with such projects, should also have taken on a more public character. The International Bank has been highly successful in mobilizing resources of capital and making them available either to governments or to private enterprises enjoying a government guarantee. The International Monetary Fund has not only been a valuable forum for consultation on exchange questions but more recently has also begun to use the currency at its disposal on a more liberal scale to assist countries in balance-of-payments difficulties and to facilitate orderly exchange adjustments. In the United States the Export-Import Bank has continued to provide credit to countries wishing to import from the United States. Contributions under the Colombo Plan have been a substantial help to countries in South and South East Asia in their development programmes. The balance-of-payments deficits of many countries are in such ways still being deliberately "managed" by action taken through international organizations or by the United States Government.¹⁰ That, of course, is not so true today as it was in the years immediately following the War. Perhaps the high water-mark of such action came in 1947 when the Marshall Plan was about to be launched. In May of that year, for example, in a speech at Cleveland, Mississippi, Mr. Dean Acheson, then Under-Secretary of State, presented a comprehensive survey of the balance-of-payments horizon around the world, estimated the total dollar deficit that would arise if imports were to continue at a tolerable level, and expressed the concern of the United States that the deficit should in some fashion be met.¹¹ As economic recovery has proceeded and as the level of reserves has risen somewhat from very inadequate levels, it has been possible for the approach to balance-of-payments problems to become more piecemeal. But deficits in many cases are still being met by deliberate international action at the governmental level. Of the measures that have been involved, none have been more important than the grants for economic and military assistance that have been extended by the United States.

The United States has also been moving to reduce its tariff and in other ways to facilitate access to its domestic market. Measurements of the general level of tariff protection are often seriously misleading since they cannot give due weight to the effect of high rates of duty which either totally exclude foreign imports or reduce them to very small volume. Such measurements, however, can be useful in suggesting the movement of tariff rates over time. We may therefore cautiously accept as indicative of what has been happening since the end of the War estimates prepared by the United States Tariff Commission which show that the average incidence of the tariff on dutiable imports had fallen from approximately 18 per cent in 1945 to approximately 12 per cent in 1953. On dutiable

goods of proven importance to Canada it would seem that United States tariff rates have been about halved since 1945; and for certain important items rates have been cut to one-quarter of where they stood in 1934, when the Reciprocal Trade Agreements Programme was initiated.¹² In recent years some progress has also been made by administrative action in reducing the protective effect of the "buy-American" legislation. Many would argue that customs administration in the United States has been as important an obstacle to foreign imports as the level of duties. The system of classification established in the United States tariff is highly complex and has led to long delays in ascertaining the rates at which many goods could be imported. The system of valuation has also discouraged imports by placing a higher value for duty purposes on many goods than those shown on the invoices. In this field also there has been some improvement. A start has been made on simplifying United States tariff classification and an act has been approved by Congress to amend the system of valuation.

Offsetting such progress, however, have been the measures to which we have already referred to provide protection for agricultural producers. Increased use has also been made of the general escape clause in the Trade Agreements Act. The effect of this clause is to empower the President to restrict imports considered by the United States Tariff Commission to be doing injury to domestic producers; and in various forms it has been incorporated in successive Trade Agreements Acts since 1943. At the time of the last extension of the Act in 1955 the escape clause was strengthened, and over the last eight or nine years more use has been made of it than previously. Between 1948 and 1955 there were 61 applications to the Tariff Commission for relief from foreign competition under this clause. Of these the Tariff Commission recommended increased protection in 14 cases and in 7 cases the President acted to raise the level of protection. Thus the occasions on which the escape clause has been applied have not been numerous. But it is an undeniable discouragement to foreign exporters to know that if they make the special effort that is often needed to sell their products in the highly competitive United States market and are successful, the upshot will almost certainly be complaints from domestic producers to the United States Tariff Commission which may result in increased protection and a waste of all their efforts.

It is difficult to resist the conclusion that the impetus given to a policy of freer trade by the inception of the Reciprocal Trade Agreements Programme in 1934, an impetus renewed by the publication of the *Commercial Proposals* sponsored by the United States and the United Kingdom in 1945, is now virtually exhausted. When the Trade Agreements Act was last extended, the President was granted authority by Congress to cut tariff rates by only a maximum of 15 per cent over a period of three years. Even if this authority were fully used, the resulting increase in foreign

imports would be very slight. One of the most distinguished American experts on foreign trade, Dr. Jacob Viner, has expressed the opinion that many of the reductions made so far in United States rates of duty under the Reciprocal Trade Agreements Programme have been little more than "window-dressing".¹³ That may be too pessimistic a view. But if there is any truth in it and if it is only now that further tariff cuts would result in substantially increased imports into the United States and some reallocation of the factors of production there, it would explain why difficulty is being experienced in making further advances in a liberal direction. In any event, the train seems to be coming to the end of the line of tariff reductions, and as it does, the brakes are being put on by greater use of the escape clause mechanism. There also seems to be great difficulty in mobilizing sufficient support in Congress to secure United States membership in the proposed Organization for Trade Co-operation, which would give some permanency to the GATT organization. We need not be either too censorious or too superior about these difficulties. The protectionist pressures that are being encountered in the United States are far from unknown in other countries. Indeed, both Republican and Democratic Administrations deserve great credit for their efforts to identify the national interest from among a welter of particular claims; for the sense of responsibility with which they have examined not only the broad lines of commercial policy but also individual cases; and for their evident desire that, on balance, access to the United States market should continue to be made easier for foreign suppliers. Yet it must be admitted, in our opinion, that in recent years progress has slowed almost to a halt. That is the more serious because the United States, as by far the world's greatest economic power and the world's largest creditor, stands in a special, in an exemplary, position. If the United States finds it almost impossible to further liberalize its commercial policy, we doubt whether much progress can be expected from other countries.

Canada's second most important customer, the United Kingdom, has also made strides towards freer trade since the end of the War. During the War all importing into the United Kingdom was under licence and many commodities were purchased in bulk under government contract. Because of the dollar stringency these arrangements — together with exchange control — were continued almost unchanged after the War and were used to discriminate against dollar suppliers. But by 1952 economic recovery had proceeded so far that decisions were taken to restore the import trade to private hands and to free raw materials and essential foodstuffs from import controls. Over the next three years these decisions were carried out with such effect that by 1955, for example, 75 per cent of Canadian exports to the United Kingdom had been freed from discrimination and were subject to only nominal restriction, while an additional 10 per cent also entered, in practice, on a non-discriminatory basis.

This progress was made possible by the success of the export drive. In prosecuting the War, the United Kingdom was forced to liquidate overseas investments worth approximately £1 billion and to assume additional foreign indebtedness to the value of approximately £3 billion.¹⁴ As a result of this drastic alteration in its overseas financial position, it was officially estimated in 1945 that the United Kingdom would have to export 50 per cent more by volume than before the War if it were to pay for imports at the 1938 level, and that the increase might have to be of the order of 75 per cent if provision were also to be made for the gradual repayment of debt and for some modest increase in the volume of imports.¹⁵ At the time many were skeptical whether it could ever be reached. But in 1950 the volume of the United Kingdom's exports was estimated to have been more than 75 per cent greater than in 1938, and in no subsequent year have they fallen far below the target.¹⁶ In spite of the financial difficulties that still face the United Kingdom, that remains a remarkable achievement, which shines all the more brightly when the wartime background is remembered. For in none of the allied countries during the War was the burden of social and individual responsibility longer, heavier or more continuous than it was in the United Kingdom. Strength for great feats of arms and of civilian endurance could be found in temporary ardour and exaltation; but they could not wipe away the deep fatigue left by those exertions and by unremitting efforts, often under conditions of danger and discomfort in factories, business houses, and government offices. These human costs of the War perhaps explain why sometimes policy has faltered and why there may have been a more widespread desire for a little comfort and security than Britain's altered circumstances would warrant. But it is also true that great daring and energy have been shown in the post-war period in many British industries such as aviation, electronics, and nuclear energy, where British production often leads the world. And the measure of success obtained in the export drive, which could not have been achieved without very considerable social discipline, suggests that the United Kingdom possesses not only the skill but also the staunchness of heart to forge new greatness from its diminished strength and resources.

The expansion of exports has also encouraged the United Kingdom to make some progress towards the convertibility of sterling. At a meeting of Commonwealth Prime Ministers in 1952, it placed before its Commonwealth partners comprehensive proposals. The details of these have never been made public but it is believed they contemplated formal arrangements for making all sterling earned by non-residents on current account convertible and for allowing sterling to fluctuate within wider limits. Although these proposals have never been implemented, action was taken subsequently to give a considerable degree of convertibility to sterling in practice. This was done by widening the area covered by the Transfer-

able Accounts system and by supporting the rates quoted in unofficial markets for transferable sterling. As a result of these arrangements, sterling can now in effect be converted by those who are prepared to sell it at a slight discount. There are a number of reasons why the original proposals have never been put into effect. It was realized at the time that they could be safely attempted only if the United Kingdom and other sterling area countries were restraining excessive internal demand by appropriate domestic policies. But that is easier said than done. The United Kingdom has heavy military commitments; it has responsibilities to assist in promoting the economic development of many communities throughout the world; it operates an elaborate system of social security for its own citizens; and the demands of its wage earners have sometimes been in excess of productivity gains. All these claims on its resources have created inflationary pressure, which has been far from perfectly controlled. Nor have all other sterling area countries been successful in holding inflation at bay. Finally, the degree of progress made by the United States in liberalizing its commercial policy has not been considered to offer sufficient promise of increased imports into the United States market to justify a decisive and formal move towards convertibility, which would be difficult to reverse.

In the long run, we would hope that the United States would again take the lead in efforts to re-establish a more liberal system of world trade. President Eisenhower is increasingly committing the Republican Party to the support of this objective, as the Democratic Party has been for many years, although there are sectional interests within both parties that are very wary of liberal measures in practice. Over the years, however, it seems likely that industries which sell a considerable proportion of their output in other countries and so have a practical interest in freer trade will increase in relative importance over the older and smaller industries which because of the high labour content in the value of their production are particularly vulnerable to foreign competition and for that reason are opposed to freer trade. Above all, we would expect that the day-to-day problems of holding the alliance together over a prolonged period of tension would gradually convince the United States that it must pursue commercial policies that allow its allies to be prosperous and strong. But in our opinion there may be little progress over the next five years or more. Recent debates in Congress have shown that protectionist forces in the United States are powerful and perhaps resurgent. Present agricultural policies will be a stumbling block. Defence considerations will continue to be adduced as an argument for caution. The primary importance of maintaining high levels of employment may make legislators hesitant to approve measures that would result in increased foreign competition. Indeed, it may be that no more than marginal advances in liberalizing United States commercial policy can be made until some method has been found by Congress for easing the local adjustments that a really liberal policy would require.

Further progress by the United Kingdom in removing trade and exchange restrictions will depend in part on United States commercial policy and in part on its own ability to shift and lighten the pack that it now carries on its back and to expand its exports overseas. It may be, however, that the United Kingdom is now importing about as much as in present circumstances it can afford. In that case, even complete convertibility and a complete removal of trade restrictions would have little effect on Canada's trade with the United Kingdom. Our exports would rise gradually with growing production in the United Kingdom, and there might be some change in their composition as a result of freer choice for United Kingdom purchasers. But that would be all. We find it hard to avoid the conclusion that balance of payments problems will be a constant preoccupation in the United Kingdom for many years to come. In one way or another, the United Kingdom's imports, which even now are hardly larger in volume than they were before the War, will have to be adjusted to fit the level of exports. Thus, the question of what will be the United Kingdom's import policy merges into the much wider question of what will be the probable articulation of world trade over the next twenty-five years.

Some Comments on the Future Structure of World Trade

To raise that question is to realize how impossible it is to answer. It is difficult, for example, to foresee the effects on the volume and on the pattern of world trade of even such a project as that already outlined in current proposals for a European free trade area. If it were to be successful in creating a common market in Western Europe, efficiency would be improved, output increased, and the ability of the whole area to trade with the rest of the world, including North America, raised to a higher plane. On the other hand, if the project were to be only partially successful, it might prove to be only another engine for discriminating against dollar imports.

However, there are some features in the world landscape that may prove of rugged durability and if so may have fairly predictable effects on the structure of world trade. One of these is the rupture of trade links with the Soviet bloc and Communist China. No doubt attitudes towards such commerce will vary over the years and from time to time will result in higher levels of East-West trade than obtain at present. But it seems unlikely that such trade will become more than relatively unobstructed; and the continuing rupture will have serious consequences for Western Germany and Japan. Both of these countries, like the United Kingdom, need heavy imports of raw materials and must export large quantities of manufactured goods. Cut off from the natural markets, they will be forced to push their exports elsewhere, with the result that trade throughout the free world in manufactures is almost certain to be highly competitive. The

competition will be the more intense because under-developed countries, although requiring capital goods for their development programmes, in all probability will be affording high levels of protection to their own new manufacturing industries. At the same time, in our opinion, they will be concentrating less than in previous periods on producing raw materials for export. These anticipated characteristics of the economic policy of under-developed countries are the second more or less durable feature we discern in the world scene which we would expect to have wide implications for the pattern of international trade.

We have already spoken of the world-wide scope of agricultural protectionism. If that feature of the world trading environment is added to those we have just mentioned, it seems reasonably clear, first, that the level of protection against manufactured goods and agricultural commodities is likely to be higher than the level of protection against industrial raw materials, and second, that suppliers of such materials are not likely to face so keen competition as those who have manufactured goods to offer.

These conclusions, if substantiated over the next two or three decades, would be of obvious importance to Canada. From earliest times the people living in this country have had a deep interest in the relative prices of imported manufactured goods and of the primary products they could offer in exchange. It was a widespread legend of the fur trade that occasionally an Indian was required to keep stacking his pelts, one after another, against a rifle barrel until they reached the muzzle before he could paddle away with the rifle.¹⁷ In that equation the terms of trade were brutally clear. But they were almost equally apparent to a Hudson's Bay factor in the late eighteenth century as he scanned his Comparative of Furs and Standard of Trade in which the value of the various skins that the Indians might bring in and of the various imported manufactured articles he had on his shelves were all translated into the currency of "Made Beaver" — one of our earliest units of account represented by the symbol MB.¹⁸ As Canadian imports and exports became more diversified, the terms of trade between them were no longer synonymous with the terms of trade between primary products and manufactures. But with little prospect, as we see it, of wider foreign markets for our manufactured goods and with our lessened dependence on imports of some raw materials such as oil, the two ratios may in future come rather closer together than they have for many decades. In any event, the ratio in international trade between the price of manufactured goods and the price of primary products will never be without some impact on the Canadian economy.

However, it would be rash to assume that the two conclusions about world trade tentatively reached above mean that the terms of trade will move over the long run in favour of primary products as a whole, or even of that group of them that consists of industrial raw materials. Earlier in this chapter we have given one reason why we think the international price

of wheat may decline relative to the general price level. Another reason is that wheat production, unlike other forms of agriculture, lends itself to large-scale mechanization which reduces unit costs. Clearly, the varying pace of technological change in different industries, with resulting variations in the rate of increase in productivity, will play a large part in determining relative price changes. In recent years, for example, constant innovation in the techniques of mining and metallurgy have prevented increased demand from producing any sustained relative increase in the price of most minerals. Over the next twenty-five years, of course, there may be relative increases in the price of some industrial raw materials. In the study made for us on *The Outlook for the Canadian Forest Industries*, for example, a considerable rise in the price of lumber relative to the general price level is anticipated;¹⁹ and the same may prove true of asbestos.²⁰ We have expressed in an earlier chapter our skepticism about possible methods of forecasting price changes; but in general we see little reason for expecting rising price trends for most raw materials.

Nevertheless, the outlook as we see it is very different from what Canadians have been accustomed to in many periods in the past. Historically, the prices of primary products have fluctuated much more widely than the prices of manufactured goods. The reasons for this in the case of agricultural commodities are briefly examined in a later chapter. The wide swings that have been experienced in the prices of raw materials have been due partly to the process of inventory accumulation and depletion, which have exaggerated for raw materials the amplitude of cyclical fluctuations of demand, and partly to the fact that many raw materials are used principally in the production of capital goods and consumer durables, which suffer most in a recession. We doubt whether stabilization policies either can, or perhaps ever should, be so thorough-going as to level out the minor business oscillations that lead to substantial inventory adjustments. Accordingly, we would not be surprised if the price of many raw materials were still to show wider variations than the price of manufactured goods. On the other hand, as we have already indicated, we think it not unreasonable to believe that a succession of extreme booms and slumps can be avoided. It is these that have led in the past to catastrophic swings in demand for industrial raw materials and abysmally low prices for them through long periods. Remove the sequences of boom and slump and you also remove one of the chief causes of depressed raw materials prices. As we foresee the future shape of world trade, then, there are grounds for considerable optimism about the terms on which most of our principal exports will be traded. Demand will probably continue to be high for industrial raw materials. There may well be a buyers' market for most manufactured goods. At the very least, it seems fair to say that, if reasonably high levels of employment can be maintained throughout the world, we should not find over the next twenty-five years that the terms of trade are stacked against us.

CANADA'S ECONOMIC GROWTH SINCE 1939

AS PART OF the background of Canada's prospective economic growth, we have now tried to provide some observations about the world environment in which it will take place, about our relations with the United States, and about the changing nature of world trade. Before proceeding to outline our detailed forecasts, it remains to say something about Canada's economic development in the immediate past. It is true, of course, that all of our history is a prelude to what lies ahead and may throw light on it. The reason we have chosen to restrict our attention to the period since 1939 is partly that earlier periods have been well surveyed in the documents of the Royal Commission on Dominion-Provincial Relations (the Rowell-Sirois Commission) and elsewhere; and partly that the War years and the decade that followed saw the growth of the Canadian economy to a different order of size and complexity. Valuable information about recent Canadian economic development is to be found in many of the studies which have been prepared for us; and in addition much of this material has been drawn together in a separate study on *Canadian Economic Growth and Development from 1939 to 1955*. That study does not pretend to follow in detail the fluctuating course of business activity since the beginning of the War but attempts to concentrate on developments which have altered the structure of the economy or permanently added to its productive resources. That is also our purpose in this chapter. In addition, we should like to make some tentative suggestions about how the contemporary Canadian economy may most appropriately be regarded.

One of the ways of approaching Canadian economic history that has had wide influence has been to see it as a panorama of staple production for export.¹ First on the scene come the French and Portuguese and English in their small fishing-vessels to catch cod on the Grand Banks and in the Gulf of St. Lawrence and to establish harbours as far inland as Tadoussac. Then for more than a hundred years the centre of the stage is held by the fur trade, with voyageurs threading their way along distant lakes and rivers as far to the northwest as Lake Athabaska and beyond, and as far south as the lower Mississippi to bring back beaver skins and other peltries for shipment to Europe. Then an attack is made in earnest on the Canadian forests and great booms of squared timber come rafted down the Ottawa and St. Lawrence. The next turbulent scene shows the first transcontinental railway being built; immigrants pouring into Western

Canada; the prairies being broken; sod houses going up on the new homesteads; and wheat being threshed far into the late summer night as sparks swarm skyward from the threshing-machine. In the boom of the '20's, the spotlight is on new staples, including primarily newsprint and aluminum; but the pattern is still essentially the same — production of a comparatively few staple commodities for export and development of the facilities required to prepare and bring them to market.

That way of looking at Canadian economic history no doubt makes clear what essentially was happening in earlier periods. But our economic growth has now reached a point where such a method of regarding it no longer seems adequate. External demand is still perhaps the most important spur to our economic development; but the stimuli are now of many kinds. Sometimes our economic growth would seem to be chiefly promoted by government expenditure. Sometimes consumer expenditure has the central role. Sometimes we are experiencing a capital boom which may be concentrated for extended periods on the resource industries and primary manufacturing but, at others, may shift to the secondary manufacturing industries. The stimuli to growth are now various, and no one of them need necessarily become more than relatively unimportant as another comes to the fore. Moreover, various kinds of economic activity interact upon one another in more complex ways than was true in earlier periods. Finally, the whole process now seems to be more self-reinforcing and self-sustaining than it was during those phases of our economic growth that have been illuminated by a view focussed on staple production. During the period from 1939 to 1955, which it is the purpose of this chapter to examine, economic growth may be seen rippling across many sectors of the economy, freshened by demand from a number of different quarters.

Sectors of the Canadian Economy

The sectors into which we have divided the economy have been chosen with a view to facilitating analysis of what has been occurring and of what structural changes may be expected in the future. Since they do not fully coincide with the sectors used by the Dominion Bureau of Statistics, it is necessary to make clear what activities they cover. The main change that we have introduced into the standard industrial classification used by the Bureau has been to cut the manufacturing category in two. How this has been done is shown in detail in Appendix G. Some general idea, however, of the division we have made is indispensable to an understanding of many of the tables and analyses contained in this report. Manufacturing is a very broad class and includes industries that differ widely. Some of them, which we have called "primary manufacturing" industries, are principally engaged in the processing of natural resources and are generally located close to those resources. These industries produce industrial materials rather than end-products, export a significant proportion

of their output, and, by and large, have little tariff protection. Many of them use a large amount of capital relative to labour and so are described as "capital-intensive". The industries, on the other hand, that we have grouped together under the heading of "secondary manufacturing" typically carry out a higher degree of processing and make use of raw materials and semi-manufactured goods of both foreign and domestic origin. They produce end-products rather than industrial raw materials; they are ordinarily located close to their markets, which are largely domestic; and most of them enjoy at least a moderate degree of tariff protection. As a group, they are somewhat less capital-intensive than the primary manufacturing industries.

Some examples may serve to indicate how we have drawn the line of division through the broad manufacturing category. Included in primary manufacturing are the lumber industry, the pulp and paper industry, non-ferrous smelting and refining, food canning and processing, and that part of the chemical industry which produces such bulk chemicals as fertilizers, acids, alkalis and primary plastics. Secondary manufacturing covers a broad range of industries, including, among others, the automobile industry, the iron and steel industry, the clothing industry, the electrical industry, the textile industry, and that part of the chemical industry which manufactures such products as paints, soaps and drugs. We are aware that the line of division between the two categories is neither completely logical nor completely satisfactory. Indeed, it could not be in a period of rapid technological change such as the present when the number of products often manufactured by a single plant makes it difficult to give a clear answer to the apparently simple question, "What is an industry?" But we would claim that the division we have made separates with rough accuracy two kinds of manufacturing which have different problems and respond to different stimuli; that for that reason it facilitates analysis; and that, into the bargain, it draws a distinction that much public discussion of manufacturing often seems to be searching for.²

The other changes that we have made in the Bureau of Statistics' classification are less significant. Forestry; fishing, and trapping; and mining, quarrying and oil wells; these are all the same as the Bureau's categories with those names. In our classification they are listed, together with electric light and power, as the "resource" or extractive industries, on which primary manufacturing is based. The various categories of tertiary industry are arranged and combined rather differently in the classification we have used than they are in the Bureau's publication; but identifying their counterparts there should not be difficult.

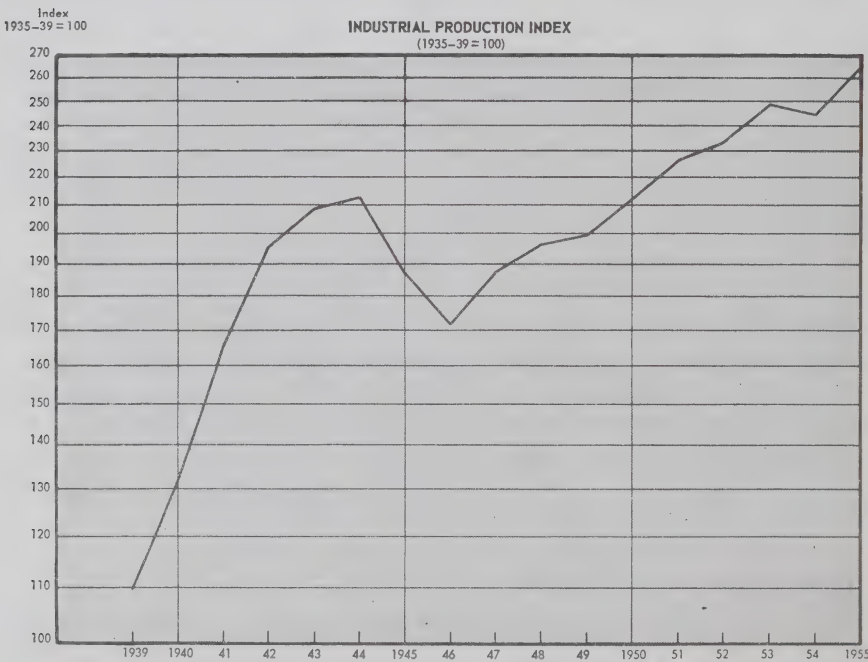
Main Dimensions of Growth

The two accompanying charts give some indication of the growth that has taken place in the Canadian economy since the beginning of the War.

Chart 5.I



Chart 5.II



In constant dollar terms the Gross National Product increased by 124 per cent between 1939 and 1955, or at an annual compound rate of 5.16 per cent. Per capita Gross National Product increased in real terms by 61 per cent, or at an annual compound rate of 3.04 per cent. Over the same period the index of industrial production increased by 142 per cent or at an annual compound rate of 5.68 per cent. Growth of this order of magnitude was made possible by concurrent growth in supplies of the basic factors of production. There was a rapid increase in population and in the labour force; in known and commercially exploitable natural resources; and in the amount of capital that had been put in place.

In 1939 Canada's population amounted to 11,267,000. By 1955 it had risen to 15,601,000, augmented by natural increase, by immigration and by the entry of Newfoundland into Confederation on April 1, 1949, with an existing population of 343,000 and with a high birth rate of Newfoundland babies. If Newfoundland is omitted from the calculation, the population of Canada has been increasing over this period at an average rate of 1.88 per cent annually. Meanwhile, the labour force (including those in the armed services) grew from 4,658,000 in 1939 to 5,042,000 in 1946 and to 5,676,000 in 1955. The rate of increase over the whole period was 1.24 per cent. It is worth remarking that most of the net addition to the labour force since 1946 was provided by immigration. This is explained by the fact that over the last 20 years the number of those in the age group from 15 to 19, from which new entrants to the labour force are ordinarily drawn, has remained virtually constant with the result that natural increase has not made any significant contribution to the net addition to the labour force since the end of the War.³ From 1939 to 1946 neither immigration nor emigration was of much importance. In the following nine years, however, 1,131,000 immigrants entered the country, while 519,000, it is estimated, emigrated, leaving 612,000 as the total for net immigration. Without large-scale immigration, labour shortages would have been even more acute than they were, and the degree of economic growth actually experienced could not have been achieved.

Unfortunately, there is no simple way of showing statistically how the natural resources base has been expanded. In the case of mining, it might be thought that figures for proved or measured reserves would furnish a reliable comparison. However, because it is expensive to develop proved reserves, such figures tend to reflect current production at least as much as total potential and therefore are an inadequate guide to the resources probably available. The best that can be done, therefore, is to pick and choose, giving examples now of increases in the volume of production, now of increases in the value of production, and, in a few instances, of increases in the figures for reserves. Although iron ore had been mined in past years in Canada and many deposits were known, there was no

production between 1924 and 1938 (except in Newfoundland), since none of the deposits could be mined at a profit. In 1955 Canadian shipments of iron ore amounted to 16 million tons and this figure rose in 1956 to more than 22 million. In 1939 Canadian production of crude petroleum from the comparatively small Turner Valley field in southern Alberta amounted to 8 million barrels. As a result of the many new fields discovered since the strike at Leduc in 1947, Canadian production in 1955 amounted to 129 million barrels; and proved reserves increased between 1946 and 1955 from some 70 million barrels to approximately 3,000 million barrels. Between 1939 and 1955 production of natural gas increased from 35 billion to 151 billion cubic feet; and proved reserves rose from 2 trillion cubic feet to some 21 trillion cubic feet. In 1939, of course, no uranium was produced in Canada. In 1956 the value of uranium production amounted to almost \$40 million. There have also been substantial increases in the production of non-ferrous metals, which have been mined in quantity in Canada since not long after the turn of the century.

Expansion of our mineral resources has been brought about in a number of different ways. In part, it has resulted from completely new discoveries, as in the case of many of the western oil fields, the uranium mines on Lake Athabasca and in Algoma, the nickel mines in northern Manitoba, the lead and zinc mines in New Brunswick, and the asbestos mines in northern British Columbia and northern Ontario. In part, it has flowed from further probing of known and already mined deposits, as in the case of the Sudbury Basin and of the Sullivan mine in southern British Columbia. In still other cases such as the copper mines at Chibougamau and the iron mines at Steep Rock Lake in Ontario and at Knob Lake in Labrador and New Quebec, it has arisen from the development of deposits whose existence had long been known but which had become economic to mine only with new technological methods and with keener world demand reflected in higher prices. Finally, these same causes made it profitable to reopen some mines that had been abandoned, such as a number of copper mines in Newfoundland and silver and base metals mines in the Yukon. The shape of our mining frontier, in other words, has been determined not only by the discoveries of prospectors on Canadian soil but also by events in Cuba or Rhodesia, by new metallurgical techniques invented in Switzerland or Delaware, and by the views taken of these developments by traders in St. Louis or on the London Metal Exchange.

In a country like Canada with abundant natural resources, many of which, however, are either inaccessible or intractable or both, the distinction that is often drawn between "land" and "capital" is apt to become a little blurred, since much of the land's potential wealth is not brought into any significant relationship with the economic process until demand for it is sufficient to justify a heavy expenditure of capital in its exploitation. That is true of water-power, for example. Between 1939 and 1955 installed

hydro-electric capacity increased from 8 million to 18 million horsepower — at the cost of a heavy outlay in dams, turbines and generators. But the capital invested in recent natural resource development in Canada has characteristically been heavy. We were told by representatives of the Aluminum Company of Canada, for example, that close to \$300 million was invested in the project at Kitimat in British Columbia before a single pound of saleable aluminum was produced.⁴ Similarly, an investment of approximately \$255 million by the Iron Ore Company of Canada was necessary before the mines at Knob Lake could be brought into production.⁵

No figures have previously been published in Canada to show the growth of capital stock. But provisional estimates developed by the Commission's staff suggest that between 1939 and 1955 the gross stock of fixed industrial capital in Canada increased (in terms of 1949 constant dollars) from approximately \$24 billion to approximately \$38 billion.⁶ However that may be, the rate of capital investment has certainly been impressive. During the War capital investment was hardly more important than it had been during the depression years of the early '30's. In 1943, for example, gross private domestic investment (excluding inventories) represented only 7.7 per cent of Gross National Expenditure, which was almost exactly the same percentage as had been invested in 1934. As soon as the War was over, however, investment accelerated rapidly. In 1946 gross domestic investment represented more than 12 per cent of Gross National Expenditure. By 1950 this proportion had risen to almost 18 per cent and by 1955 to almost 19 per cent. During recent years, as we have already mentioned in Chapter 3, Canada has been devoting a substantially larger proportion of its total expenditure to capital formation than has the United States.

The Canadian Economy during the War

Perhaps these are sufficient indications of the main dimensions of economic growth over the period and we may now turn to record briefly what happened to the economy during the War, in the post-war period of readjustment and during the succeeding expansion. At a number of points in the narrative, reference is made to the information contained in Tables 5.1, 5.2, and 5.3, which show the changing composition of the employed civilian labour force and of total output* and expenditure.

* The measure of output used in Table 5.2 and throughout this chapter is Gross Domestic Product at factor cost. This differs from Gross Domestic Product at market prices in that the amount of indirect taxes has been subtracted and the amount of subsidies added, as those two items are defined in the National Accounts. The only difference between Gross Domestic Product at market prices and the more familiar concept, Gross National Product at market prices, is that the former excludes foreign earnings of residents of Canada and includes earnings in Canada of non-residents, while the latter includes all income earned by residents and excludes all income earned by non-residents. The Gross Domestic Product (at factor cost) of a sector measures the value of the output *attributable to that sector*. In other words, it is a net concept.

Table 5.1

CIVILIAN EMPLOYED LABOUR FORCE BY SECTORS 1939-55

Years	Industry excl. government and community services											
	Total	Gov't & comm. services	Agriculture	Business economy excl. agriculture and government and community services								
				Total	Re-sources and industries	Transportation and communication	Construction	Trade finance & services	Manufacturing			
									Total	Primary	Secondary	
Thousands												
1939.....	3,981	318	3,663	1,293	2,370	228	249	186	979	728	163	565
1940.....	4,121	325	3,796	1,260	2,536	231	253	215	1,015	822	179	643
1941.....	4,157	336	3,821	1,147	2,674	255	266	211	958	984	192	792
1942.....	4,366	348	4,018	1,068	2,950	240	289	221	1,001	1,199	214	985
1943.....	4,432	360	4,072	1,049	3,023	201	307	207	986	1,322	224	1,098
1944.....	4,435	384	4,051	1,067	2,984	190	314	160	995	1,325	239	1,086
1945.....	4,357	404	3,953	1,075	2,878	180	327	165	995	1,211	232	979
1946.....	4,487	437	4,050	1,186	3,064	216	346	228	1,052	1,222	267	955
1947.....	4,844	461	4,383	1,122	3,261	219	374	254	1,145	1,269	280	989
1948.....	4,886	485	4,401	1,096	3,305	228	372	289	1,143	1,273	284	989
1949.....	4,948	507	4,441	1,079	3,362	221	367	321	1,142	1,311	284	1,027
1950.....	4,996	532	4,464	1,018	3,446	239	377	337	1,170	1,323	286	1,037
1951.....	5,111	556	4,555	940	3,615	271	399	351	1,239	1,355	301	1,054
1952.....	5,173	579	4,594	887	3,707	267	423	344	1,334	1,339	293	1,046
1953.....	5,246	603	4,643	858	3,785	254	424	352	1,367	1,388	298	1,060
1954.....	5,194	627	4,567	873	3,694	267	393	333	1,389	1,312	300	1,012
1955.....	5,328	664	4,664	817	3,847	297	401	367	1,420	1,362	313	1,049
Percentage distribution												
1939.....	100.0	8.0	92.0	32.5	59.5	5.7	6.3	4.7	24.5	18.3	4.1	14.2
1940.....	100.0	7.9	92.1	30.6	61.5	5.6	6.1	5.2	24.6	20.0	4.4	15.6
1941.....	100.0	8.1	91.9	27.6	64.3	6.1	6.4	5.0	23.0	23.7	4.6	19.1
1942.....	100.0	8.0	92.0	24.4	67.6	5.5	6.6	5.1	22.9	27.5	4.9	22.6
1943.....	100.0	8.1	91.9	23.7	68.2	4.5	6.9	4.7	22.2	29.9	5.1	24.8
1944.....	100.0	8.6	91.3	24.1	67.3	4.3	7.1	3.6	22.4	29.9	5.4	24.5
1945.....	100.0	9.3	90.7	24.7	66.0	4.1	7.5	3.8	22.8	27.8	5.3	22.5
1946.....	100.0	9.3	90.7	25.3	65.4	4.6	7.4	4.9	22.4	26.1	5.7	20.4
1947.....	100.0	9.5	90.5	23.2	67.3	4.5	7.7	5.3	23.6	26.2	5.8	20.4
1948.....	100.0	9.9	90.1	22.4	67.7	4.7	7.6	5.9	23.4	26.1	5.8	20.4
1949.....	100.0	10.2	89.8	21.8	68.0	4.5	7.4	6.7	23.1	26.5	5.7	20.3
1950.....	100.0	10.6	89.4	20.4	69.0	4.8	7.6	6.9	23.4	26.5	5.7	20.8
1951.....	100.0	10.9	89.1	18.4	70.7	5.3	7.8	6.9	24.2	26.5	5.9	20.6
1952.....	100.0	11.2	88.8	17.1	71.7	5.2	8.2	6.6	25.8	25.9	5.7	20.8
1953.....	100.0	11.5	88.5	16.3	72.2	4.8	8.1	6.7	26.1	26.5	5.7	20.8
1954.....	100.0	12.1	87.9	16.8	71.1	5.1	7.6	6.4	26.7	25.3	5.8	19.5
1955.....	100.0	12.5	87.5	15.3	72.2	5.6	7.5	6.9	26.6	25.6	5.9	19.7

GROSS DOMESTIC PRODUCT BY SECTORS AT FACTOR COST 1939-55
(excluding residential rents and G.D.P. arising in the armed forces sector)

Table 5.2

Years	Industry excl. government											
	Business economy excl. agriculture and government										Secondary	
	Total	Gov't & comm. services	Total	Agri- culture	Total	Re- sources industries	Trans- portation and commu- nication	Con- struction	Trade finance & services	Manufacturing		
										Total		Primary
Total												
In millions of 1949 dollars												
1939.....	9,012.0	944.5	8,067.5	2,183.4	5,884.1	803.2	630.9	379.1	1,948.6	2,122.3	566.0	1,556.3
1940.....	10,100.4	996.5	9,103.9	2,240.1	6,863.8	920.1	773.3	429.1	2,067.7	2,673.6	669.0	2,004.6
1941.....	11,182.1	1,133.0	10,049.1	1,903.4	8,145.7	936.0	939.7	535.0	2,223.8	3,511.2	788.1	2,723.1
1942.....	13,053.9	1,092.9	11,961.0	2,841.8	9,119.2	935.9	1,042.7	566.1	2,255.3	4,319.2	846.2	3,473.0
1943.....	12,664.1	1,137.8	11,526.3	1,910.9	9,615.4	886.9	1,189.5	539.1	2,272.7	4,727.2	872.8	3,854.4
1944.....	13,309.7	1,148.1	12,161.6	2,355.5	9,806.1	867.7	1,193.8	434.0	2,381.8	4,928.8	891.9	4,036.9
1945.....	12,295.9	1,197.8	11,098.1	1,782.3	9,315.8	895.2	1,186.1	443.9	2,579.8	4,210.8	854.2	3,356.6
1946.....	12,674.2	1,333.7	11,340.5	1,969.6	9,370.9	922.6	1,092.7	580.1	3,065.9	3,709.6	895.4	2,814.2
1947.....	13,301.7	1,372.5	11,929.2	1,827.7	10,101.5	981.7	1,159.2	672.0	3,272.1	4,016.5	977.5	3,039.0
1948.....	13,765.5	1,405.0	12,360.5	1,958.2	10,402.3	1,073.6	1,184.0	767.2	3,229.5	4,148.0	1,008.3	3,139.7
1949.....	14,050.3	1,455.1	12,595.2	1,892.0	10,703.2	1,073.3	1,195.8	820.5	3,414.5	4,199.1	1,014.3	3,184.9
1950.....	14,928.6	1,508.6	13,420.0	2,085.0	11,335.0	1,199.8	1,233.9	857.4	3,620.0	4,423.9	1,072.8	3,351.1
1951.....	15,846.0	1,560.8	14,285.2	2,338.5	11,946.7	1,391.3	1,329.4	887.8	3,595.2	4,743.0	1,151.1	3,591.9
1952.....	16,687.8	1,647.8	15,040.0	2,544.7	12,495.3	1,423.9	1,436.0	970.7	3,827.1	4,837.6	1,153.6	3,684.0
1953.....	17,325.3	1,711.1	15,614.2	2,406.6	13,207.6	1,484.1	1,455.0	1,044.5	4,012.4	5,211.6	1,196.6	4,015.0
1954.....	16,730.9	1,771.9	14,959.0	1,916.6	13,042.4	1,610.9	1,392.7	1,060.1	4,054.4	4,924.3	1,237.1	3,687.2
1955.....	18,270.7	1,836.6	16,434.1	2,342.3	14,091.8	1,819.4	1,486.0	1,187.3	4,324.5	5,274.6	1,324.7	3,949.9
Percentage distribution												
1939.....	100.0	10.5	89.5	24.2	65.3	8.9	7.0	4.2	21.6	23.6	6.3	17.3
1940.....	100.0	9.9	90.2	22.2	68.0	9.1	7.7	4.3	20.5	26.4	6.6	19.8
1941.....	100.0	10.1	89.9	17.0	72.9	8.4	8.4	4.8	19.9	31.4	7.0	24.4
1942.....	100.0	8.4	91.6	21.8	69.8	7.2	8.0	4.3	17.2	33.1	6.5	26.6
1943.....	100.0	9.0	91.0	15.1	75.9	7.0	9.4	3.3	17.9	37.3	6.9	30.4
1944.....	100.0	8.6	91.4	17.7	73.7	6.5	9.0	3.3	17.9	37.0	6.7	30.3
1945.....	100.0	9.7	90.3	14.5	75.8	7.3	9.7	3.6	21.0	34.2	6.9	27.3
1946.....	100.0	10.5	89.5	15.5	74.0	7.3	8.6	4.6	24.2	29.3	7.1	22.2
1947.....	100.0	10.3	89.7	13.7	76.0	7.4	8.7	5.1	24.6	30.2	7.3	22.9
1948.....	100.0	10.2	89.8	14.2	75.6	7.8	8.6	5.6	23.5	30.1	7.3	22.8
1949.....	100.0	10.4	89.6	13.5	76.1	7.6	8.5	5.8	24.3	29.9	7.2	22.7
1950.....	100.0	10.1	89.9	14.0	75.9	8.0	8.3	5.7	24.3	29.6	7.2	22.4
1951.....	100.0	9.8	90.2	14.8	75.4	8.8	8.4	5.6	22.7	29.9	6.9	22.6
1952.....	100.0	9.9	90.1	15.3	74.8	8.5	8.6	5.8	22.9	29.0	7.3	22.1
1953.....	100.0	9.9	90.1	13.9	76.2	8.6	8.4	6.0	23.1	30.1	6.9	22.0
1954.....	100.0	10.6	89.4	11.5	77.9	9.6	8.3	6.3	24.3	29.4	7.4	22.0
1955.....	100.0	10.1	89.9	12.8	77.1	9.9	8.1	6.5	23.7	28.9	7.3	21.6

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 5, Appendix F, p. 398 and Chap. 7, Appendix C, p. 501.

DISTRIBUTION OF GROSS NATIONAL EXPENDITURE IN CONSTANT DOLLARS—1939-1955

Years	Con- sumer expend- iture	Government expend- iture	Investment (excl. inventories)			Change in inventories		External trade		Residual error	G.N.E.		
			Total	Resi- dential con- struction	Non-resi- dential con- struction	Machin- ery and equip- ment	Business		Exports less imports			Imports	
							Total	Business					
In millions of 1949 constant dollars													
1939.....	6,338	1,195	1,104	402	287	415	687	+530	2,973	301	2,672	+15	9,640
1940.....	6,841	1,809	1,380	409	350	621	680	+419	3,342	417	2,925	-92	11,035
1941.....	7,344	2,525	1,672	428	455	789	33	+236	4,366	+1,051	3,315	-62	12,563
1942.....	7,658	5,056	1,531	329	521	681	702	-241	3,870	396	3,474	-163	15,180
1943.....	7,760	5,666	1,188	273	516	399	287	-89	5,424	+1,292	4,132	-48	15,571
1944.....	8,338	6,447	1,193	335	357	501	218	+13	5,206	+283	4,923	-81	15,962
1945.....	9,069	4,534	1,372	395	349	628	501	-119	5,066	+1,041	4,025	-102	15,413
1946.....	10,266	2,389	1,865	503	578	784	400	+486	4,137	+258	3,879	-41	15,137
1947.....	10,741	1,851	2,531	616	701	1,214	419	+548	4,088	+157	4,245	-70	15,315
1948.....	10,555	1,915	2,829	677	850	1,302	154	+159	4,188	+432	3,756	-52	15,833
1949.....	10,963	2,128	2,968	742	903	1,323	48	+175	4,011	+174	3,837	-2	16,279
1950.....	11,645	2,216	3,047	760	970	1,317	591	+450	4,034	-176	4,210	+2	17,325
1951.....	11,572	2,760	3,205	650	1,061	1,494	1,056	+682	4,406	-299	4,705	+46	18,340
1952.....	12,237	3,462	3,484	635	1,223	1,626	485	+197	4,872	2	4,874	-79	19,587
1953.....	12,905	3,452	3,844	832	1,287	1,725	584	+328	4,856	441	5,297	-12	20,332
1954.....	13,375	3,357	3,678	910	1,250	1,518	266	-60	4,671	387	5,058	+87	19,844
1955.....	14,300	3,481	4,044	1,122	1,294	1,628	436	+160	4,998	-723	5,721	+35	21,573
Percentage distribution													
1939.....	65.7	12.4	11.5	4.2	3.0	4.3	7.1	+5.5	30.8	+3.1	27.7	+0.2	100.0
1940.....	62.0	16.4	12.5	3.7	3.2	5.6	+6.2	+3.8	30.3	+3.8	26.5	-0.8	100.0
1941.....	58.5	20.1	13.3	3.4	3.6	6.3	+0.3	+1.9	34.8	+8.4	26.4	-0.5	100.0
1942.....	50.4	33.3	10.1	2.2	3.4	4.5	+4.8	-1.4	25.5	+2.6	22.9	-1.1	100.0
1943.....	49.8	36.4	7.7	1.8	3.3	2.6	-1.9	-0.6	34.8	+8.3	26.5	-0.3	100.0
1944.....	52.2	40.4	7.4	2.1	2.2	3.1	-1.2	+0.1	32.6	+1.8	30.8	-0.5	100.0
1945.....	58.8	29.4	9.0	2.6	2.3	4.1	-3.3	-0.8	32.9	+6.8	26.1	-0.7	100.0
1946.....	67.8	15.8	12.3	3.3	3.8	5.2	+2.6	+3.2	27.3	+1.7	25.6	-0.3	100.0
1947.....	70.1	12.1	16.5	4.0	4.6	7.9	+2.8	+3.6	26.7	-1.0	23.7	-0.5	100.0
1948.....	66.7	12.1	17.9	4.3	5.4	8.2	+1.0	+1.0	26.5	+2.8	23.7	-0.3	100.0
1949.....	67.3	13.1	18.2	4.6	5.5	8.1	+0.3	+1.1	24.6	+1.1	23.6	-0.01	100.0
1950.....	67.2	12.8	17.6	4.4	5.6	7.6	+3.4	+2.6	23.3	-1.0	24.3	+0.01	100.0
1951.....	63.1	15.0	17.4	3.5	5.8	8.1	+5.7	+3.7	24.0	-1.7	25.7	+0.3	100.0
1952.....	62.5	17.7	17.8	3.2	6.2	8.3	+2.5	+1.0	24.9	-0.01	24.9	-0.4	100.0
1953.....	63.5	17.0	18.9	4.1	6.3	8.5	+1.6	+1.6	23.9	-2.2	26.1	-0.1	100.0
1954.....	67.4	16.9	18.5	4.6	6.3	7.6	-1.3	-0.3	23.5	-2.0	25.5	+0.4	100.0
1955.....	66.3	16.1	18.7	5.2	6.0	7.5	+2.0	+0.7	23.2	-3.4	26.5	+0.2	100.0

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 7, Appendix D, pp. 506 and 508.

This is not the place to record the achievements of the Canadian economy in turning out military material and supplies for its own forces and for those of its allies at the same time as Canada was maintaining a force of more than 750,000 men under arms. Our focus of attention must rather be on those developments that left some lasting increase in productive capacity or led to some lasting structural change in the economy. When war broke out, the economy was operating at far below its full capacity. To mention only one indicator, 11 per cent of the labour force were still without work in 1939. That explains why much of the talk in army mess halls and among matelots on the destroyers was about riding the rods; about brushes with the railway police; and about the "jungles" that had sprung up during the depression on the fringes of most Canadian cities. It is also one reason why in some sectors of the economy it was possible to increase output very substantially without any increase in productive capacity. If, on the outbreak of war, there had been unemployment in the cities, there had also been serious under-employment on the farms, to which many who had been unable to find work elsewhere had drifted back since there they could at least be sure of food and shelter. The needs of the armed forces and the increase in industrial activity at once began to cut into this reservoir of surplus manpower. In 1939 the labour force in agriculture amounted to almost 1,300,000. By 1944 this figure had dropped to only a little over a million. With demobilization in 1945 and 1946, the farm labour force again turned upwards. But as the mechanical revolution on Canadian farms got under way, this very temporary movement was quickly reversed and the number of those employed in agriculture has since dropped almost steadily so that, in 1955, it amounted to only 817,000, or slightly more than 15 per cent of the employed civilian labour force. Here was one wartime trend that was to prove lasting.

In spite of a declining labour force and little or no increase in the acreage under cultivation or in agricultural capital, farm output between 1935-39 and 1940-44 increased by some 30 per cent. This was accomplished by dint of more intensive cultivation. Perhaps more important, though, than the rise in real output, which was comparatively modest when set alongside a 60 per cent increase for the economy as a whole between 1939 and 1944 (when output reached its wartime peak), were the production shifts that occurred. By 1944 output of livestock and of poultry had both increased by about 58 per cent over pre-war levels. Canadian agriculture had been given a twist away from its concentration on the production of cereals. This was to be undone when the War was over; but it foreshadowed a trend of increasing significance for the future.

The resource industries also expanded less than the economy as a whole, with their output increasing by only 8 per cent from 1939 to 1944. What happened in these industries essentially was that, while output remained virtually constant, the products they turned out were put to

different uses and many shifts in production occurred, with the output of gold, for example, being sharply reduced and the output of zinc sharply increased. The only area in which there was a marked expansion in capacity was hydro-electric power, where installed capacity grew by only a little less than 25 per cent between 1939 and 1944. Much of this increase was associated with growth in the aluminum industry, whose ingot-producing capacity increased fivefold between 1939 and 1944.⁷ Another primary manufacturing industry that grew significantly during the War was the primary chemical industry, with facilities for the manufacture of sulphuric acid, for example, doubling over the period. The output of all primary manufacturing industries taken together grew at about the same rate as total output.

The heterogeneous service industries were inevitably affected very unevenly by wartime demand. The railways were called on to move a much larger number of passengers and a much larger volume of freight; and the construction industry was hard-pressed to put up all the new military and industrial installations that were required. The output of the construction industry and of the transport, communications and storage industries rose somewhat more than total output during the War. Activity in almost all the other service industries, however, was curtailed by wartime restrictions. Output in the trade, finance and private service industries increased by only 20 per cent from 1939 to 1944 and the steady growth in the proportion of the labour force employed in these industries that had been noticeable in every decennial census for more than 70 years was interrupted. Personal incomes during the War increased in real terms by almost three-quarters, but this increase was prevented from stimulating most of the service industries by increased taxes, higher savings, and shortages of consumer goods.

The sector of the economy that benefited most from wartime expansion was secondary manufacturing. During the War it was simultaneously insulated from foreign competition and exposed to the forcing effects of intensified research and development. From the very beginning of the War Canada was cut off from overseas suppliers by scarcity of shipping space, and this situation was aggravated as the destructiveness of enemy action mounted. Sources of supply in the United States were also less available, initially because of the importance of preserving Canada's limited exchange resources of United States dollars and, later, as United States war production shifted into high gear, because of the lack of surplus capacity across the border to meet the requirements of the Canadian war effort. As a result, Canadian industry found itself more on its own than it had ever been before. Government assistance came in the form not only of very large contracts and generous capital cost allowances, but also of sponsored programmes of research and development. As the President of the National Research Council pointed out in his submission to us, very little industrial

research was being done in Canada before the War; but in the Second World War Canadian industry underwent the same exposure to widespread government research as United States industry had experienced in the First World War.⁸ In this protected hot-house atmosphere, where costs were of relatively minor importance, secondary manufacturing grew like a beanstalk.

Between 1939 and 1944 it is estimated that the output of the secondary manufacturing industries increased by 160 per cent. Because of the difficulty of valuing munitions on a basis comparable with civilian production, that estimate may somewhat overstate the increase actually achieved. Nor was all of the increased output by any means permanent or accompanied by permanently increased capacity. Nothing may be left of a wartime explosives plant but some decayed bunk-houses and a road leading nowhere that a canoeist comes on with surprise as he is portaging through the bush. Yet when every allowance has been made, it remains true that the output of the secondary manufacturing industries increased prodigiously during the War and that it left them with greatly increased stature both absolutely and relatively. In some industries, basic capacity was permanently enlarged. Basic steel-making capacity, for example, increased by more than 50 per cent during the War and was never subsequently cut back.⁹ Production was rounded out. Electronic components, that before the War had been imported from the United States, were now produced in Canada. New industries were successfully established. Synthetic rubber, roller bearings, diesel engines, antibiotics, high octane gasoline, were produced here for the first time during the War and this new production resulted in permanent additions to Canada's industrial capacity. New skills were acquired by the labour force. Management became more adept and more confident through experience with large-scale organization and improvisation. The story is summed up in a few simple figures: in 1939 secondary manufacturing accounted for approximately 17 per cent of total output and 14 per cent of the employed civilian labour force; by 1944 those percentages had risen to 30 per cent and 25 per cent respectively; by 1949, when the post-war adjustment was complete in most respects, they had fallen back but only to 23 per cent and 21 per cent, which were considerably above the comparable figures for any year either in the '20's or '30's.¹⁰

As would be expected, the chief stimulus to economic expansion during the War was provided by government expenditure. In his annual report for 1945 the then Governor of the Bank of Canada, Mr. G. F. Towers, drew attention to the fact that government expenditure on goods and services, including exports directly or indirectly financed by government, represented about 40 per cent of Gross National Expenditure and he described this total government outlay as "the main driving force behind the very high level of activity which was attained during the War period". The problem before the country, he went on, was "to expand the other

types of expenditure, and particularly domestic private investment and domestic consumption, in order that there will be compensating stimulus as government outlays decline to their post-war level".¹¹

Years of Adjustment

In the period following the end of the War as the economy was being converted to peacetime production, and on through 1949 as total output again began to rise, the principal stimulus to economic growth and activity would seem to have been consumer expenditure. When the War ended, there was a large backlog of unsatisfied consumer demand and a large accumulation of personal savings. Together with sustained levels of current income, they provided the fuel for the blaze of consumer spending that, more than anything else, kept a good head of steam behind the economy and enabled it to shift to a civilian basis without much decline in output or any considerable degree of unemployment.

In Canada, as well as in the United States and other countries, it had been feared during the War that the end of hostilities might be followed by a sharp drop in business activity and elaborate preparations had been made to avoid such a contingency. The various precautionary measures that had been introduced had been inspired by a wide variety of motives. Some of them were principally designed to deal justly and even generously with ex-servicemen on their return to civilian life. Examples of such measures were the war service gratuities and re-establishment credits payable by the Department of Veterans Affairs. Other measures were principally designed to put into effect the recommendations of the Rowell-Sirois Commission for minimum national standards of welfare and for adjustments in the taxing power. Examples of such measures were the Unemployment Insurance Act of 1940, the Family Allowance Act of 1944, and the Wartime Tax Agreements between the Federal and Provincial Governments. Another set of measures, including the Agricultural Prices Support Act of 1944, were intended to prevent a repetition of the disastrous fall in farm incomes that had added so materially to distress in the '30's. But all of these measures were coloured to a greater or less degree by the general view that there should be means available to the federal authorities to maintain flows of expenditure for consumer and capital goods when depression threatened.

That view found its most authoritative Canadian expression in the White Paper on Employment and Income, which appeared in the spring of 1945. In that document the government of the day declared that a high and stable level of employment was a major objective of its policy and gave some indications of the courses to be followed in achieving it. In the field of foreign trade, it was pointed out, Canada had already co-operated with many other countries in plans for the United Nations Relief and Reha-

bilitation Agency, the International Monetary Fund and the International Bank for Reconstruction and Development. These international efforts to restore the damage done by the War and to re-establish a freely operating system of world trade would be supplemented on Canada's part by substantial credits to enable its principal overseas customers to pay for their imports from Canada while they were repairing and readjusting their economies. In the investment field, provision had been made to provide credit for small businesses through the formation of the Industrial Development Bank and for residential construction through the formation of the Central Mortgage and Housing Corporation. It was the government's intention that private investment should be further stimulated by maintenance of the low interest rates that had prevailed during the War. In the field of taxation, early and substantial reductions were forecast in corporate and personal income tax rates and in the sales tax. Since it is unlikely that any government in Canada will want to divest itself of responsibility for maintaining full employment, the change in the relation of the government to the economy epitomized in the White Paper of 1945 is likely to prove permanent. Indeed, it may well be considered to be the most important of all the changes recorded in this chapter.¹²

Some of the measures that were conceived during the War to ward off a threatened depression operated only indirectly to increase consumer incomes. Others, however, such as family allowances, veterans gratuities and tax reductions, directly increased the amounts available to individuals for consumer spending. And all of them helped, along with the large volume of accumulated personal savings, to create an atmosphere of confidence, in which consumers felt they could safely proceed to make large purchases of the goods they had been denied during the War. In this atmosphere consumer expenditures, in terms of 1949 constant dollars, grew from \$8,338 million in 1944 to \$10,963 million in 1949. Over the same period the percentage of Gross National Expenditure represented by consumer spending increased from 52 per cent to 67 per cent.

But nowadays as one economic stimulus comes to the fore, others do not necessarily recede, except in a relative sense; and if consumer demand would seem to have provided the principal stimulus from 1945 to 1949, private investment and external demand were also vigorous during those years. This was the period when Canadian cities began to be circled with the new housing developments that have expanded, ring by ring, ever since. It was also the period when combines and tractors were moving in droves on to Canadian farms to transform agriculture in the Prairie Provinces, particularly, and to reduce drastically and definitively the size of the farm labour force. The manufacturing industries were also equipping themselves with new structures and new equipment. Reflecting these developments, private investment in constant dollar terms grew from \$1,193

million in 1944 to \$2,968 million in 1949. The percentage of Gross National Expenditure accounted for by private investment increased over the period from 7 per cent to 18 per cent.

One of the sectors of the economy in which there was substantial capital investment during these years was the resource industries. We have already mentioned that output in this sector increased hardly at all during the War, except for the generation of electric power. With the end of the War, however, external demand for the products of Canada's mines and forests revived. The output of metals, wood pulp and lumber all expanded substantially and the commodities produced by the primary manufacturing industries on the basis of these resources regained the pre-eminent place they had held before the War in Canada's export trade.

During this period a significant proportion of our exports were financed by governments — by the post-war credits extended by Canada to the United Kingdom and other countries and later by United States grants to third countries for off-shore purchasing under the European Recovery Programme. It is estimated, for example, that in 1946 one-third of all Canada's exports were financed by the Canadian Government.¹³ When one looks back at those years and also recalls the historic dependence of the Canadian economy on the export trade, what seems surprising about Canada's exports immediately after the War is not that Canada became involved in balance-of-payments difficulties late in 1947 through exporting such a large volume of goods without receiving anything in immediate return, but rather that, at a time when domestic consumption and private investment were both strong, it was possible for the economy for almost two years to export so much on credit.

By 1949 the economy, supported by high levels of demand, particularly on the part of consumers, had gone a long way toward sorting itself out into its new peacetime pattern. Agriculture now accounted for a significantly smaller proportion of total output and total employment. The resource industries and primary manufacturing had risen in relative importance from the position they had held during the War. Secondary manufacturing provided employment for almost as many workers as it had in 1944, but it had declined since then in relative importance, both from the point of view of output and employment, as the total labour force had grown and as the service industries had come to provide a larger and larger proportion of all the jobs in Canada. The number of workers in the construction industry doubled between 1944 and 1949 and there were also substantial increases in employment in transportation and communication and in the trade, finance and private services sector. The 1949 Gross National Product in constant dollar terms for the first time exceeded the previous peak that had been reached in 1944.

The Post-Korean Expansion

With the boom initiated by the outbreak of war in Korea in 1950, we return to a period that fits the familiar, historic pattern of dominant export demand, which was accompanied in this case, as in similar periods in the past, by heavy capital expenditures to meet it. It was in those years that the iron ore in Labrador and New Quebec was developed; that heavy investment was made in the development of oil and natural gas on the Prairies; and that a new large-scale aluminum project at Kitimat in northern British Columbia was undertaken. Between 1949 and 1955 output in the resource industries increased by approximately 70 per cent, accounting for 10 per cent of total output in the latter year instead of the 8 per cent that it had represented in 1949. Gross domestic investment as a proportion of Gross National Expenditure varied between 17 per cent and 19 per cent and was heavy in the resource industries and primary manufacturing. Canadians who remembered the boom in the first decade of the century or in the '20's, found much that was familiar in the dynamic behind this new growth.

It is worth noticing, however, how deeply Canada's economic growth in this period, unlike other boom periods in the past, was influenced by defence expenditures. In real terms government expenditure was half as large again in 1955 as it had been in 1950 and accounted for 16 per cent rather than 13 per cent of Gross National Expenditure. In part these increased expenditures went to support much larger armed forces; but their effects on the economy were widespread. Under the stimulus of government contracts the aircraft industry, which had declined sharply after the War, grew rapidly until by 1955 it employed more than 30,000 workers. The need to build radar warning lines stimulated the construction industry, the electronics industry and civil aviation. The establishment of Camp Gagetown near Fredericton added the equivalent of a new industry to New Brunswick and one larger than any that had existed there before. These effects of Canadian and United States defence expenditure on the Canadian economy are reasonably well known and are obvious enough. What is not always so fully realized is how the programme of resource development was coloured to greater or less degree by defence considerations.

When the North Atlantic Treaty Organization was established in 1949, military planning was predicated on the assumption that the probable course of weapon development would make some future years more dangerous than others. With the outbreak of war in Korea, however, this view gave way to the belief that the period of maximum danger had already begun; and in its turn, this was modified into a realization that the threat to the security of the West might last for decades and take many forms. At the same time as strategic thinking was undergoing these changes, it was beginning to appear that the economic recovery of the countries

of Western Europe had now progressed so far as to initiate a period in which their requirements for raw materials would be on an ascending scale. Moreover, the United States was discovering that it was becoming deficient in many important raw materials. This discovery was dramatized by the work of the Paley Commission, which had been established by President Truman early in 1951 in order to consider how the needs of the United States for raw materials arising from the defence programme, from consumer demand, and from the long-term growth of the economy could best be satisfied. At the same time the International Materials Conference, which had been set up as a result of the meeting of President Truman and Prime Minister Attlee at the end of 1950, was attempting to allocate materials that were in short supply.

These events and the thinking and forecasts which they reflected have had an important influence on the development of Canada's natural resources. It has been estimated, for example, that about 40 per cent of the free world's production of nickel is used for defence purposes;¹⁴ and it seems likely that this is also a fair measure of the proportion of Canadian output that has been channelled in recent years either into the United States stockpile or into military production. Contracts with the United States Government, in fact, have been the indispensable basis for much new nickel production. Similarly, uranium production in Canada has been made possible only by guaranteed sales to the Atomic Energy Commission in the United States. The influence of defence considerations on other resource developments has not always been so direct. But the search for oil and natural gas in Western Canada has obviously been affected by the political and military uncertainties overhanging the continuance of supplies from the Middle East; and United States steel companies might have decided to open up reserves of iron ore in other parts of the world had it not been for the fact that Canadian supplies were less likely to be interrupted in time of war. Canadian resource development, in other words, has profited from our proximity to the voracious industrial capacity of the United States at a time when the United States was undertaking large responsibilities for the defence of the free world and when troubled political conditions were casting a shadow on the reliability of overseas sources of supply. In some cases these projects have also been on a larger scale than might have seemed justified without the expectation that defence requirements and political uncertainties would persist for many years to come. All of them — the developments of iron ore and aluminum and nickel and uranium and oil and natural gas — have a full rich body that would be fortifying in peace or war or cold war. But many of them have a glint of the sergeant's shilling somewhere at the bottom of the glass, just the same.

It is also worth remarking the continued vivacity of consumer demand during this period. Both on an aggregate and per capita basis, consumer

expenditure continued to rise steadily with only a slight interruption to the upward trend in 1951. The long-run stability of the ratio of personal expenditure to personal income, cautions against attributing too much novelty to the phenomenon. Nevertheless, the vigour of consumer spending was remarkable. In part, it would seem to be explained by the wide distribution and levelling up of incomes throughout the population. There was wherewithal for the aspirations of consumers to be widely satisfied. The high levels of consumer expenditure would also seem to be related to changing consumption patterns that concentrated expenditure on automobiles and other consumer durables for which credit could be readily arranged. Far outstripping the growth of personal disposable income and of consumer expenditure, consumer credit has had the effect of loosening the ties between the addiction to consume and income limitations. Another partial explanation would seem to be that consumers have now rid themselves of the last vestiges of a depression psychology and, in the expectation that good times will continue, are complacent about assuming fairly heavy burdens of consumer indebtedness. Whatever the reasons, they have proceeded to purchase goods and services on a scale that has confounded many forecasts. To take only one illustration, broadcasting of television programmes began in Canada only in 1952. By 1956 it is estimated that 55 per cent of the wired households in Canada had one or more television sets installed.¹⁵ Consumption expenditure on this scale is clearly only possible with high levels of income. But it is equally obvious that, in its turn, it provides a stimulus toward higher incomes.

The Canadian Economy Today

By 1955 the Canadian economy was much more diversified — and more versatile — than it had been in 1939. A large number of new industries had been successfully established. Secondary manufacturing occupied a relatively more important place in the economy than it had before the War. The resource base had been extended. The range of commodities exported in significant volume had been widened and total exports accounted for a significantly smaller slice of Gross National Expenditure than they had in 1939.

The extent of the change should not be exaggerated. If we now export a wider range of commodities, our exports are still heavily concentrated on a comparatively few basic staples. There has been a significant shift away from agricultural commodities toward forest products, metals, minerals and chemicals; but the bulk of our exports are still composed of goods which have received comparatively little processing.¹⁶ If we now depend relatively less on exports for the generation of incomes and Gross National Product, they still play a vital part in our economy.

Indeed as is shown in Table 5.4, their declining relative importance is almost wholly attributable to the declining importance of agricultural exports in relation to total output.

Table 5.4

CANADA'S EXPORTS AS A PERCENTAGE OF GROSS NATIONAL EXPENDITURE

	1926-28	1936-38	1946-48	1954	1955
Goods, including gold					
Total exports	23.1	21.4	20.1	16.8	16.8
Excl. agriculture ^a	11.3	15.0	13.8	13.2	13.7
Goods and services					
Total exports	29.6	28.6	26.3	21.2	21.5
Excl. agriculture ^a	17.8	22.1	20.1	17.6	18.4

^a Excludes agricultural and vegetable products and animals and animal products as shown in the trade statistics, other than alcoholic beverages, rubber and products, and fish and fishery products.

SOURCE: Roger V. Anderson, *The Future of Canada's Export Trade*, 1957, a study for the Commission, Chap. 1, p. 7.

If many new industries have been established in Canada and many new products are now manufactured here, that development must be seen against what has been happening across the border. In an earlier chapter we referred to the many new chemical products now being marketed in the United States. In the same vein, we were told in evidence that more than 80 per cent of the total business of one of the largest electronics firms in the United States is now in products that did not exist commercially ten years ago.¹⁷ In other words, if the range of commodities made in Canada has been expanding, there has concurrently been a great expansion in the range of commodities that might possibly be produced by a highly industrialized modern economy; and the gaps in Canadian production are still large and conspicuous. We have been impressed by the fact that per capita Canadian consumption both of crude steel and of chemicals of all kinds is only about 50 per cent of American consumption. Those ratios reflect lower standards of living, to be sure. But they also reflect heavy Canadian imports of machinery and other capital equipment, consumer durables, and fabricated parts and components, most of which require for their manufacture a great deal both of steel and of metal alloys, other mineral substances and organic materials that have been subjected to long chemical treatment.¹⁸

For all that, the change has been extraordinary. How far we have travelled may be suggested by a quotation or two from the Report of the Rowell-Sirois Commission, which was published in 1940. In their chapter on "The Canadian Economy Today", the Commissioners described Canada as "one of the least self-sufficient countries in the world" and, after mentioning the importance of exports of wheat and listing the other commodities in which Canada had large export surpluses, went on to make the following observations:

"On the other hand, either Canada cannot produce or cannot produce as cheaply as some countries of the world her own requirements of such essential industrial raw materials as iron, coal, oil, rubber and tin; of tropical fruits, fibres and other natural products; and of many iron and steel, chemicals and textile manufactures based on special local resources and techniques. Every country could display a list of surplus and deficit resources but in few would both sides of the balance sheet contain such basically important products in such volume and in few would the extremes be so great."¹⁹

Those sentences, we think most readers would agree, are hardly an accurate description of the Canadian economy as it exists today.

As a result of increased diversification, it has now become a more complex and sophisticated mechanism than it was, with a large variety of reciprocating movements and with complex interactions that owe something to the multiplicity of its parts but also something to social and institutional arrangements. The wage structure, the tax structure, the programme of social security benefits, as well as attitudes toward work and social mobility, all assist in transmitting dynamic impulses widely through the economy. Money gets rubbed off on a great many fingers. Canadians like it, they like the things it can buy, and they find nothing in the social structure of the country that would discourage them from owning as many of the things they fancy as their pocketbooks will allow. On the contrary, a good deal of consumer expenditure is clearly competitive in nature and is designed to provide an outward and visible sign of rising social status. It follows from all this that when there is effective demand for the products of our resource industries or of our primary manufactures or, indeed, of any other sector of our economy, money filters into the hands of many Canadians and is used to purchase goods and services that stimulate activity in the secondary manufacturing and tertiary industries. Conversely, the economy is now strong enough to be able, if need be, to support at least a part of the export trade for at least short periods of time by providing loans or grants to finance it, or, alternatively, by making supplementary payments to primary producers if the returns obtained for their commodities, when traded internationally, seem inadequate.

At the same time, the economy has become more self-reinforcing than it was before the War. Our prosperity will continue to be heavily dependent on foreign trade and foreign investment. But there are also powerful internal forces at work that make for continuing economic growth. Many of our industries earn substantial profits that can be used for further expansion. They also help to create conditions in which other industries can thrive by contributing to pools of managerial, technical and manual skills. Their needs for machinery, components and materials — as well as the by-products they throw off — are constantly opening opportunities for

the establishment of new production. So plants manufacturing electronic components spring up to supply the television industry, and the petroleum industry is increasingly surrounded by a cluster of petro-chemical industries. Through their location in urban centres, new or expanded industries create a need for heavy investment in municipal improvements. The process is intricate and to a large extent self-reinforcing and self-sustaining. It would seem that the threshing machine has taken wing and turned into something more like a jet.

POPULATION AND MANPOWER

THE FIRST census in the modern world was taken in Canada in 1666. The new Intendant, Jean Talon, had been in New France only a few months when, acting on instructions from Colbert, the First Minister of Louis XIV, he began to make preparations for enumerating the sparse and scattered population of the colony. The census he drew up is still to be seen in the Archives de la Marine in Paris and shows that in 1666 there were 547 souls living at Quebec, 532 at Beaupre, 471 on the Isle of Orleans, 624 at Montreal, and 461 at Three Rivers, with a few more scattered in other settlements along the St. Lawrence. The total number of inhabitants of the colony was 3,215, of whom 1,344 were held to be capable of bearing arms.¹

By 1763 the population of New France had risen to about 60,000. By 1830, it is estimated, the population of British North America was approximately a million. By the time of Confederation in 1867, it had risen to some 3,500,000. Then followed three decades of economic disappointment during which emigration to the United States substantially exceeded immigration from overseas, so that the census taken in 1901 showed that the population had grown to only 5,371,000. The next decade saw the largest flow of immigrants that Canada has ever experienced and the most rapid rate of population growth, which continued fairly steadily until the end of the '20's, when it was retarded by the Great Depression.²

Population Forecasts

Obviously the principal basis for population forecasts must be the record of past population growth. We have been fortunate in being able to draw on the census material that has been gathered in Canada on a decennial basis since 1851 and on the admirable vital statistics that have been published annually by the Dominion Bureau of Statistics since 1921. We are anxious, however, that the firmness of the foundations we have been able to use should not lead to misplaced confidence in the population forecasts we have erected on them. There is a fairly widespread disposition to assume that, since many of the people who will be living in Canada in 1980 already exist, and since the parents of still others have already been entered in the census returns, forecasts of population growth are more reliable than forecasts of other economic developments. In some measure that may be true. But they remain highly fallible. Before proceeding to

present our forecasts, we would like to warn that they will prove accurate only in the unlikely event that the assumptions on which they are based are fully realized. There are three main sets of assumptions we have made in the process of formulating population forecasts. The first concern fertility rates, which show the number of children born each year for every thousand women in the various age groups. The second concern mortality rates, which show the numbers dying each year for every thousand men and women in the various age groups. The third set of assumptions concern net immigration, or the number by which those immigrating into Canada exceed those emigrating. All these assumptions have been carefully chosen and, we think, are reasonable. But no one can tell whether they will be validated as the years roll by; and unless they are, our population forecasts will be more or less wide of the mark.

This warning is the more necessary because many previous population forecasts, although carefully and reasonably constructed, have proved egregiously wrong. We have been asked to rush in where the Bureau of Statistics has been cautious not to tread — at least officially. In the United States, however, various official or quasi-official forecasts have been made from time to time; and many of these have been proved by events to be little more than essays in elaborate error. In 1937, for example, population forecasts were prepared for the National Resources Committee. Of the range of 16 forecasts presented, only the highest predicted a population for 1965 as large as has already been reached. All but three of the forecasts showed a population for 1980 below that reached in 1955. In 1943 the same authors revised their forecasts for the National Resources Planning Board. With an assumption of medium fertility and low mortality, they predicted that it would be 1980 before the population of the United States grew to the size it actually attained in 1955.³

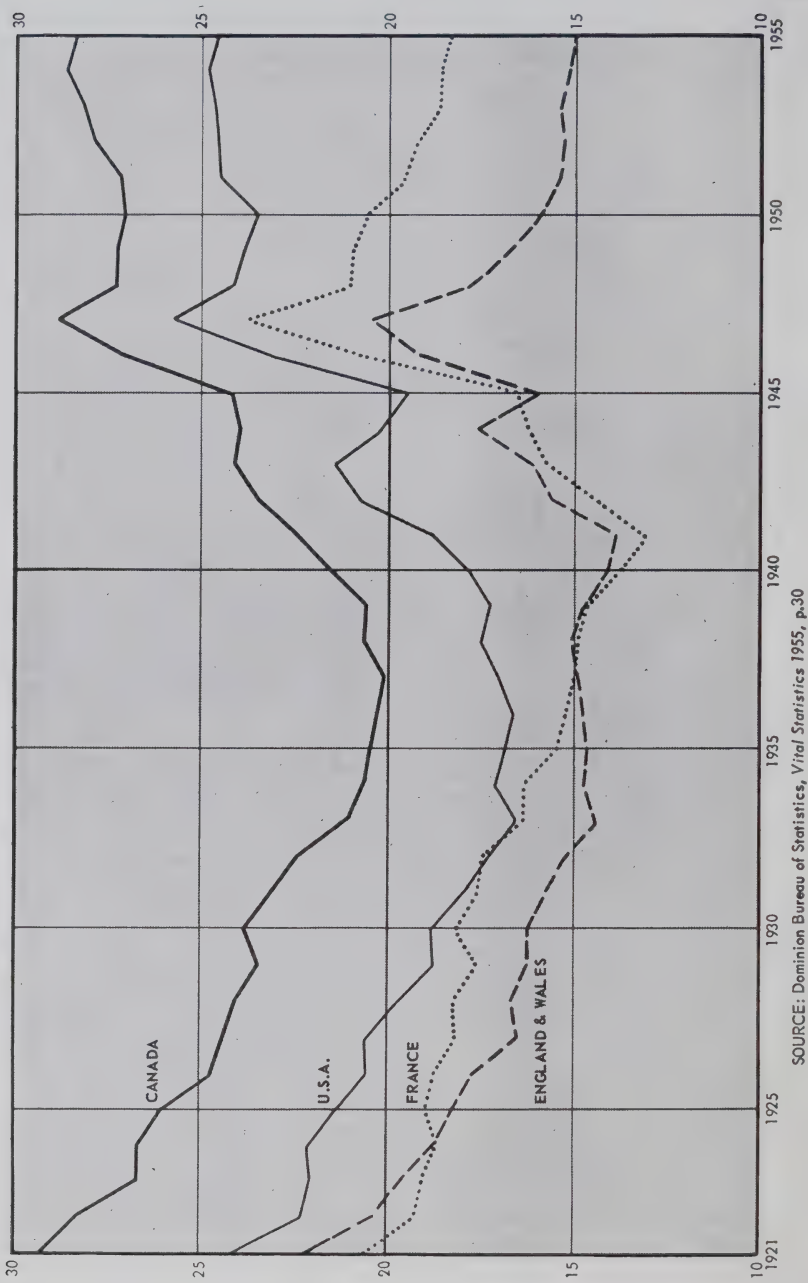
These forecasts and others like them not only coloured the views taken of the future in the '30's and '40's, but also had a wide influence on economic discussion and economic analysis. They proved wrong because of the great upsurge in fertility that occurred in North America after the War and has continued ever since. But who could have foreseen that? The birth rate had been declining in the United States as well as in other Western countries for many years and there seemed no reason to suppose that the trend would be reversed. No doubt if similarly careful and seemingly authoritative population forecasts had been made in Canada at about the same time, they would have failed to discern on the horizon the great increase in fertility that has in fact occurred in this country as well as in the United States.

That phenomenon suggests how mysterious are many, indeed perhaps most, demographic facts and what a wide vision is required if their causes are to be even partially apprehended. Why is the marriage rate in Ireland so low?⁴ Why is the suicide rate in Copenhagen so high?⁵ It would require

an almost God-like knowledge of the societies from which those facts emerge to understand fully the reasons for them. Deepest of all, perhaps, lie the reasons why people marry and have children — or, more narrowly, why they have more children in one period than in another. Clearly current economic conditions have something to do with it. But only something. Other possible reasons press for attention ranging all the way from fashion to philosophy and religion. The position of women in society; attitudes towards family limitation; social security payments, including particularly family allowances; standards of nutrition; all these are relevant. Also involved are expectations about the future. One may surmise, for example, that in times of great international uncertainty some people may decide that it would be imprudent to bring children into the world, while on others the effect may be to suggest that when everything is at hazard, prudential considerations may as well be disregarded. Feelings about the past are also germane: the strength of ancestral voices echoes in the birth rate. Nor without significance is the relationship between the society and the processes of nature — in fact and also through the modes of thought. For in many ways the ideas of thinkers long since dead affect the desire to have children as well as other aspects of human behaviour. In some communities no doubt the principles of the Utilitarians are still influencing the birth rate, as those of the Existentialists may in years to come. What is involved would seem to be no less than the total view held by the members of a given society at a given time about themselves and about the world — as well as those forces which move human creatures in seeming blindness towards unknown ends.

To plot the course of an *élan* on which so many influences operate must always be hazardous. But it is an indispensable part of our task. Stripped of technicalities, one of the main questions that we have had to try to answer in making population forecasts has been whether the birth rate in Canada will remain at its present very high level. How the birth rate (which of course reflects the age composition of the population as well as fertility) has been moving since 1921 is shown in Chart 6.1. It will be readily agreed, we think, that economic conditions have affected it, as is suggested by the sharp decline during the years of the depression. But that other things can influence it as powerfully is proved by the fact that the glissade was as pronounced during the prosperous '20's as during the hungry '30's. Indeed, the decline in the birth rate associated with the cyclical depression of the '30's seems to have been superimposed on a secular downward trend that had been noticeable in Western countries for many decades and that is to be explained only by reference to broad cultural changes. The sharp rise that occurred at the end of the War was to be expected, since many births that might otherwise have taken place during the war or the depression had been deferred. Many, however, thought that an increase in the birth rate would be only a flash in the pan. It did not prove so. After a drop between 1947 and 1949, the birth rate again

Chart 6.1
CRUDE BIRTH RATES



began to rise and now stands at a level virtually as high as at the post-war peak in 1947 or as it did in 1921. At the present time Canada has the highest birth rate of any highly industrialized country. It is higher, for example, than the birth rate in the United States or in any country of Western Europe. It is also higher than the recorded birth rate of a number of Asian countries, including Japan, India, and Pakistan, where the birth rates are ordinarily considered to be extremely high. The process of industrialization and urbanization has usually been accompanied by a lower birth rate. Canada, as a highly industrialized, highly urbanized country, with a high birth rate, is an exception. The question is how long it will remain so.

On examination, the high level of the birth rate in Canada since the end of the War is shown to have been due to the fact that relatively more people have been marrying and having children, rather than to an increase in the average size of families. The marriage rate (the number of people marrying for every thousand of population) has been extremely high, and although it has fallen from its post-war peak, in 1955 it was still above what it had been in any year during the '20's or '30's. It is also high compared with the marriage rates in most other countries, although somewhat below the rate in the United States. By and large, it appears that not only are more people marrying, but they are marrying at a younger age. For example, between 1941 and 1951, there was a greater percentage increase in the marriage rate for those in the age groups between 14 and 25 than for any others. The average age of those marrying for the first time has also fallen steadily since 1940. In that year the average age for males was 28, whereas in 1955 it was only a few months more than 26. Similarly, the average age for females has dropped by a full year over the same period.⁶ Unfortunately, no study has been made since the 1941 census of the average number of children born per family. It would seem, however, to be subject to conflicting influences. On the one hand, the tendency for the proportion of very large families (with five or more children) to decline, that has long been noted, continues. On the other hand, there are indications that fewer marriages are childless and that the average number of children among the smaller families has increased somewhat.

Our expectations concerning the Canadian birth rate over the next twenty-five years are incorporated in the detailed forecasts of specific fertility rates for the various age groups that are presented in Chapter 4 of the study prepared for us on *Output, Labour and Capital in the Canadian Economy*. We have taken the position that the trend towards earlier marriages will continue for some years. We also expect that it will be some years before the size of Canadian families ceases to reflect, on the one hand, a persistent decrease in very large families and, on the other hand, some inclination on the part of parents at the other end of the scale of family size to plan slightly larger families. Implicit in the assumptions

made about specific fertility rates, of course, is also the belief that none of the business recessions to be expected over the next quarter of a century will match in severity the depression of the early '30's. If the estimates of future fertility rates prove accurate, the birth rate will decline, but only moderately, moving down from where it stood in 1955 at 28.4 and varying between 24.2 and 25.6 over the period from 1960 to 1980.

Detailed estimates of mortality rates by age and sex are also to be found in the study to which we have already referred. Such estimates are likely to show a smaller margin of error than estimates of fertility, since mortality rates in Canada have been dropping fairly steadily for the last 20 years and there is little reason to expect that this trend will not continue. Specific mortality rates, when combined, yield the death rate, which shows the number of deaths in each year for every thousand of the population. The death rate has declined consecutively every year since 1943 and is now one of the lowest in the world.

One reason why we expect a continued decline in the death rate is that there is clearly still scope for reducing infant mortality. Here is one field where Canada has lagged behind other advanced countries. The number of children dying within the first year after birth in Canada is still much higher than in the Scandinavian countries or in Australia, New Zealand or the United Kingdom. In Sweden, for example, the infant mortality rate is little more than half what it is in Canada. As more children are born in hospitals and as standards of medical care improve, we would expect further important reductions in the infant mortality rate. Since 1921, it has been cut by more than two-thirds but there is obviously still room for substantial progress.⁸

Although some decline in mortality rates can be forecast with assurance, there cannot of course be complete certainty about the speed at which they will be reduced. Most of the improvement in life expectancy that has been achieved over the past 30 years has come about because of the greater control that has been gained over contagious and infectious disease and because of the reduction in maternal and infant mortality. As a result, the principal causes of death nowadays are those characteristic of older people, such as cancer and diseases involving the heart and the vascular system. Further progress in reducing the death rate, therefore, now largely depends on what can be done to combat the degenerative diseases that attack those who are no longer young. It may be found that the medical problems involved in curbing such diseases will be more intractable than those already surmounted in controlling contagion. On the other hand, if medical research into the causes of cancer, for example, were to make an important breakthrough, further dramatic increases in life expectancy might be registered. Between 1931 and 1951 life expectancy at birth increased from 60 to over 66 years for men and from 62 to almost 71 years for women;

but there has been comparatively little increase in life expectancy for men over 40.⁹

Our population forecasts rest on only one set of assumptions about fertility and one set of assumptions about mortality. However, we have thought it desirable to use a range of assumptions about net immigration. The assumptions we have adopted are that those entering the country will exceed those emigrating by no less, on an average, than 50,000 a year, and probably no more than 100,000, with the likelihood being that net immigration may run at about 75,000. Population projections are presented based on these three different assumptions. For purposes of presenting summary forecasts, however, and for forecasting developments in particular sectors of the economy, we have ordinarily adopted the mean assumption, i.e., that net immigration will amount on an average to 75,000 a year. It is perhaps worth stressing that if the total of net immigration is to reach that figure, the inflow of immigrants will have to be substantially larger, since, in any year, some residents of Canada will be leaving to go to other countries.

Our judgment concerning net immigration has been made after examining the record of immigration and emigration in past years and after giving some thought to the probable size of future migration movements. During the ten-year period from 1945 to 1955 immigration averaged 120,000 a year, while emigration averaged 50,000, with the result that net immigration ran at 70,000 a year on the average. From 1951 to 1955 immigration averaged 170,000, while emigration averaged 60,000 so that net immigration ran, on the average, at 110,000. It will thus be seen that we are assuming that net immigration over the next twenty-five years will be less than it has been in some post-war years but slightly more than it was on the average during the decade from 1945 to 1955.

Net immigration is a function of many variables. It will largely depend on comparative levels of economic activity in Canada, in the countries from which our immigrants normally come and in other countries which provide alternative settlement opportunities for possible immigrants. Government policies in all those countries will have a bearing on it. It will also be influenced by comparisons drawn between social conditions in Canada and elsewhere. Changes in the international scene will affect it, too, as is suggested by the migration movements precipitated by the political upheavals in Europe in the nineteenth century, during the Second World War, and a year ago in Hungary. In the event of further upheavals of that kind, net immigration into Canada might be considerably larger than we have assumed. It might also exceed our estimate if discouragement about the economic future of Western Europe or apprehension about its political prospects were to become more widespread than they are at present. On balance, however, we are inclined to think that there is more likely to be

a dearth than a plethora of would-be immigrants into Canada from those countries from which they have traditionally come.

This is suggested by an examination of the possibilities in Western Europe. Although this country was originally settled from France, it is a very long time since Frenchmen in any large numbers have come to Canada, preferring their own unique intellectual climate and their own almost uniquely fruitful soil and being confirmed in that preference by the policy of their Government. Indeed, we have been informed in a reference paper prepared for us by the Department of Citizenship and Immigration that the French Government now only "barely tolerates" restricted activities on the part of Canadian immigration officers. Essentially the same attitude is taken by the governments of the Scandinavian countries and of Austria and Switzerland. As is shown in Table 6.1, the principal source of Canadian immigrants since the end of the War (as for many decades in the past) has been the United Kingdom, and we would expect the flow of settlers from

Table 6. 1

SOURCES OF IMMIGRANTS—GROSS IMMIGRATION NUMERICAL AND PER CENT DISTRIBUTION

Year	U.K.	U.S.	Germany	Italy	Netherlands	Other	Total
thousands							
1946	50.5	11.5	0.4	—	2.2	7.1	71.7
1947	35.4	9.4	0.3	0.1	2.7	16.1	64.1
1948	45.6	7.4	2.5	3.2	7.0	59.8	125.4
1949	20.7	7.8	2.9	7.7	6.8	49.2	95.2
1950	12.7	7.8	3.8	9.0	7.2	33.4	73.9
1951	31.6	7.8	29.2	23.4	19.3	83.2	194.4
1952	45.3	9.3	25.7	20.7	21.1	42.5	164.5
1953	46.8	9.4	34.2	23.7	20.3	34.4	168.9
1954	43.4	10.1	28.5	23.8	16.2	32.3	154.2
1955	29.4	10.4	17.6	19.1	6.8	26.6	109.9
per cent							
1946	70.4	16.0	.5	—	3.1	10.0	100.0
1947	55.3	14.7	.4	.1	4.3	25.2	100.0
1948	36.4	5.9	2.0	2.6	5.6	47.5	100.0
1949	21.8	8.1	3.1	8.1	7.2	51.7	100.0
1950	17.1	10.6	5.2	12.2	9.7	45.2	100.0
1951	16.2	4.0	15.0	12.1	9.9	42.8	100.0
1952	27.5	5.7	15.6	12.6	12.8	24.8	100.0
1953	27.7	5.6	20.2	14.0	12.0	20.5	100.0
1954	28.1	6.6	18.5	15.4	10.5	20.9	100.0
1955	26.7	9.5	16.0	17.4	6.0	24.4	100.0

NOTE: Immigrant admissions by country of last permanent residence.

SOURCE: Dominion Bureau of Statistics, *Canadian Statistical Review, 1955 Supplement*, p. 11.

that country to continue to be substantial. It must be remembered, however, that the forecasts for the United Kingdom prepared by the Royal Commission on Population indicated either a static or only very slowly

increasing population.¹⁰ Notwithstanding that, official opinion in the United Kingdom is in favour, on broad political grounds, of emigration to Commonwealth countries.¹¹ It may be anticipated, in our opinion, that Canada will continue to receive many thousands of new immigrants from the United Kingdom every year, although the size of this movement will be affected by the competing attractions of Australia and New Zealand, which pay part of the cost of transportation. The next most important source of immigrants in recent years has been West Germany. But we would not be surprised if increasing difficulty were experienced in obtaining suitable immigrants from that source because of the high level of economic activity which has been maintained in the Federal Republic and because of the demands of the German armed forces. Even in 1952 in a report to the Organization for European Economic Co-operation, the Government took the position that there would likely be no need for large-scale emigration.¹² Since then no obstacles have been put in the way of Canadian immigration officers, but similar activities by other countries have been curtailed and it seems unlikely that the Federal Republic will offer any encouragement to emigration. Movements of immigrants from the Netherlands to Canada have declined since 1954 and we would doubt if the numbers coming to Canada will be so large as they have been in some post-war years, in spite of the continued low death rate, high birth rate, and high population density in the Netherlands, since the inward flow from the former Netherlands East Indies is now virtually at an end and high levels of economic activity have created a need to obtain workers from other European countries.

The reasons for the decline since 1954 in the number of those emigrating to Canada from the Netherlands, as they have been explained to us by the Deputy Government Commissioner for Emigration in the Hague in a communication dated April 27, 1956, are perhaps of sufficient interest to warrant a paragraph to themselves. In part, the decline has been due, according to the Deputy Commissioner, to "adverse reports on the economic conditions and employment situation in Canada" at a time when the Netherlands was enjoying full employment. In part, it is to be explained by the fact that the Canadian Government does not pay any part of the cost of transportation. A third reason is to be found "in the standards of admission and selection applied by the Canadian Immigration Service". "Until recently", his letter continues, "only those Dutch people could be considered for emigration to Canada whose occupation figured on the so-called occupation list. This list was liable to alteration and consequently migration to Canada was more or less unstable. The list has recently been abolished and selection standards relaxed. This measure will have good results if the situation can be continued for a considerable time".

On the other hand, there will be opportunities for obtaining a substantial number of emigrants from some of the countries of Southern

Europe. In the last few years Italy has ranked only after the United Kingdom and West Germany as a source of immigrants. Particularly in Southern Italy, there is a large population surplus, many of whom are underemployed, and the Italian Government would like to see much larger annual movements in population, both to North and South America. Greece is in much the same position; and Spain and Portugal have recently modified their attitudes and have come to the conclusion that some emigration would be to their advantage.

Immigration to Canada from the United States has remained fairly constant since the end of the War, never moving very far from an average figure of about 9,000 a year. However, it has been more than counter-balanced by the number of those leaving Canada to settle across the border. No official figures are collected in Canada to show the volume of emigration from this country, the estimates used by the Bureau of Statistics being residual figures that are checked against the records kept in foreign countries, particularly the United States, which is the destination of more than 50 per cent of all those emigrating from Canada. Over the ten-year period from 1945 to 1955, as we have already indicated, it is estimated that emigration averaged 50,000 a year, with emigration to the United States running at approximately 30,000 a year. In view of the rapid economic development that we predict for Canada and the great interest that is being taken in it by United States concerns, we think it not improbable that our net loss on exchange of people with the United States will be reduced over the next two or three decades. No neat summary is possible of these scattered observations about possible migration movements. But it will be apparent that, in our opinion, the flow of inter-continental migration, particularly from Western Europe, will tend to be curtailed by the pursuit of full-employment policies of the governments of the West, by the nationalist colour almost inevitably given to economic policy by this objective, and by other national preoccupations, including comprehensive systems of social security and the maintenance of population in countries where the birth rate has been falling. In addition, of course, it is likely that potential emigrants in Eastern Europe will be prevented from leaving their own countries by the Iron Curtain.

Having explained the speculative assumptions underlying our population forecasts, we are now in a position to summarize them. As will be seen from Table 6.2, we expect that by 1980 the population of Canada will be in the neighbourhood of 27 million.* In Table 6.3 on page 108 further information is provided about the Canadian population that we anticipate by 1980, particularly with regard to its age and sex distribution.

* For technical reasons, the population estimates and projections shown in the tables in this chapter do not include the population of the Yukon and the Northwest Territories. Some amends for this omission are offered in Chapter 19.

Table 6.2

TOTAL POPULATION OF CANADA
(*thousands*)

Net immigration at rate of:	1955	1960	1965 (as at June 1)	1970	1975	1980
0.....	15,573	17,090	18,61	20,190	21,960	24,010
50,000.....	15,573	17,370	19,210	21,160	23,310	25,770
75,000.....	15,573	17,510	19,520	21,640	23,990	26,650
100,000 per annum.....	15,573	17,650	19,820	21,130	24,660	27,530

The Labour Force

How many of the population will be in the labour force? As defined by the Bureau of Statistics, the labour force includes all those 14 years and over (with the exception of those in the armed forces, in hospitals, jails or other institutions, or on Indian reserves) who are employed or looking for work. Of the various subtractions that are necessary to yield the civilian non-institutional population 14 years and over, the only one that perhaps requires some explanation is the allowance to be made for the armed forces.

The manpower requirements of the Canadian services will depend upon the kinds of emergency for which we must be prepared. In Chapter 2 we discussed the risks of a global nuclear war and the state of virtual nuclear stalemate that now exists. It is perhaps barely conceivable that a global war might be fought without the use of nuclear weapons; but this possibility seems so remote as to hardly merit consideration. There even seems little likelihood that, with nuclear weapons now integrated into the military forces of the United States, it will ever again forego using them in such a large-scale peripheral war as was fought in Korea. On the other hand, there are still countries in the world which stand outside the alliances centred either on Moscow or Washington, and it is possible that a military attack on one of them might lead to a limited war in which none of the participants would be willing to use nuclear weapons. There are also situations in which hostilities might be provoked that would have at least the colour of a civil war; and here again the fighting might be restricted to conventional weapons. Indeed, it may be that the present stalemate, in which the two largest world powers would both appear to have a sober horror of a global nuclear war, has somewhat increased the danger of such local "brush fire" campaigns. For this reason if for no other, it will be many years before conventional forces prove obsolete. In the event of such local hostilities, international police action may be required, and Canada may be called on to participate. But we doubt whether our participation would ever require very substantial forces.

Table 6.3

**COMPARATIVE AGE SEX DISTRIBUTION
POPULATION OF CANADA AS AT JUNE 1, 1955 and 1980**
(forecast is based on assumption of net immigration of 75,000 per annum)

Age	Males				Females				Total			
	000		%		000		%		000		%	
	1955	1980	1955	1980	1955	1980	1955	1980	1955	1980	1955	1980
	1,011.3	1,561.6	12.8	11.6	967.9	1,482.4	12.6	11.2	1,979.2	3,044.0	12.7	11.4
0-4	860.0	1,387.0	10.9	10.3	821.8	1,317.9	10.7	10.0	1,681.8	2,704.9	10.8	10.2
5-9	689.2	1,251.3	8.7	9.3	662.9	1,190.6	8.6	9.0	1,352.1	2,441.9	8.7	9.2
10-14	574.8	1,152.1	7.3	8.6	553.9	1,110.0	7.2	8.4	1,128.7	2,262.1	7.2	8.5
15-19	558.9	1,119.8	7.1	8.3	548.5	1,067.5	7.1	8.1	1,107.4	2,187.3	7.1	8.2
20-24	593.3	1,081.9	7.5	8.0	597.2	1,031.3	7.8	7.8	1,190.5	2,113.2	7.6	7.9
25-29	562.8	961.3	7.1	7.2	580.7	906.5	7.5	6.9	1,143.5	1,867.8	7.3	7.0
30-34	540.6	793.4	6.9	5.9	544.8	751.3	7.1	5.7	1,085.4	1,544.7	7.0	5.8
35-39	499.6	691.0	6.3	5.1	486.9	646.4	6.3	4.9	986.5	1,337.4	6.3	5.0
40-44	436.6	661.8	5.5	4.9	408.5	632.7	5.3	4.8	845.1	1,294.5	5.4	4.9
45-49	373.1	649.4	4.7	4.8	350.3	651.2	4.6	4.9	723.4	1,300.6	4.6	4.9
50-54	314.6	562.0	4.0	4.2	306.2	591.8	4.0	4.5	620.8	1,153.8	4.0	4.3
55-59	265.7	491.3	3.4	3.7	259.5	530.8	3.4	4.0	525.2	1,022.1	3.4	3.8
60-64	231.1	393.1	2.9	2.9	219.2	443.4	2.8	3.4	450.3	836.5	2.9	3.1
65-69	180.4	294.6	2.3	2.2	174.7	336.7	2.3	2.5	355.1	631.3	2.3	2.4
70-74	112.2	197.3	1.4	1.5	114.5	241.0	1.5	1.8	226.7	438.3	1.5	1.6
75-79	54.6	121.1	.7	.9	60.1	159.0	.8	1.2	114.7	280.1	.7	1.1
80-84	18.5	59.2	.2	.4	23.6	77.6	.3	.6	42.1	136.8	.3	.5
85-89	6.0	22.7	.1	.2	8.5	33.4	.1	.3	14.5	56.1	.1	.2
90+	7,883.3	13,451.9	100.0	100.0	7,689.7	13,201.5	100.0	100.0	15,573.0	26,653.4	100.0	100.0

Source: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 4, Table 4.16, p. 176.

The need to provide for such contingencies would of course be in addition to Canadian undertakings to NATO and for the defence of Canada. It seems unlikely that the manpower requirements to fulfill either our NATO commitments or such other international obligations as may arise from time to time will substantially increase. On the other hand, the need to strengthen the air defences of North America will probably necessitate some increase in air force personnel. So far as we have been able to judge, however, it will probably be possible to meet these requirements without any increase in the target figure for the size of the three Canadian services taken together. The authorized ceiling for military manpower now stands at 120,000, with the present strength of the three services approximately at 117,000. If more men are required to strengthen our defences against attack from the air, it seems likely that they can be found either by a re-deployment of existing service manpower, or by an adjustment of the manpower targets for the individual services, or by an increasing use of civilian defence employees. The assumption, therefore, that we have made about the size of the armed forces over the next twenty-five years is that they will not rise above 120,000 and will thus form a smaller percentage of both a growing population and total labour force.

The next question is how many of the civilian non-institutional population 14 years and over will be members of the labour force, either employed or looking for work, and how many will be students going to schools or universities, housewives getting the children's lunch, or retired folk pottering about the garden? Forecasting membership rates in the labour force involves deciding whether to bank on a continuance of Canadian experience since 1945 (when the first labour force sample survey was taken) or to assume that in the years ahead these rates will approximate more closely to what they have been in the United States. For the difference between the experience of the two countries in this regard has been wide — wider, indeed, than differences between the various Canadian regions. Many more women participate in the labour force in the United States than in Canada and many more men 65 years and older, while the number of men in the labour force between the ages of 14 and 24 is much smaller than in Canada. These, then, are the categories in which the main uncertainties lie — women, particularly over the age of 24; men 65 years and over; and men 24 years and younger. The curse laid on Adam will look after the rest.

Since the end of the War there has been a sharp drop in the membership rate for men 65 years and over. This is no doubt a reflection of a general move towards earlier retirement associated with more adequate provision of private and state pensions and with secular occupational shifts of the labour force, particularly out of agriculture. For in many parts of the country old farmers are rather like old soldiers. If they sometimes die, they seldom retire. Since both these trends may be expected to

continue over the next two or three decades and since the age distribution of men over 65 is expected to become progressively more heavily weighted with men over 75, the rate for men 65 and over may be expected to decline moderately, although we do not anticipate that the trend towards earlier retirement will continue indefinitely. In the age group between 14 and 19 the very rapid decline during the last decade reflects general prosperity and the longer schooling that it has made possible. There can be no doubt that this rate will fall further because of the growing demand for skilled and professional manpower and the growing ability of many families to equip their children with more formal education. But some of the technical skills that will be required may well be provided through in-plant training, night classes and other such informal schemes. For that reason we have postulated only a comparatively gradual decline over the next two or three decades. We have similarly allowed for some decline in the membership rate for men in the ages between 20 and 24. But again the estimated decline is moderate.

Women will go their own way as they always do, and it is not for us to prescribe for them. But since we have to guess, we think it likely that a higher proportion of them will choose to enter the labour force than at present, particularly in the age groups over 25. For those who are married, their husbands' wishes will have something to do with how they decide — but probably not very much. Their husbands' incomes, which on the average will be rising, may be more relevant; but whether higher average incomes will mean more women freed from the necessity of supplementing their husbands' earnings or more labour-saving appliances to permit them to go out to work is a nice question which we do not feel obliged to adjudicate. Most important of all, perhaps, will be the number of employment opportunities there are for women. On this issue we have little doubt at all: the opportunities will greatly increase. Automation may bring some decrease in the number of clerical positions now filled by women. But offices would be unthinkable without them and it seems clear that in one capacity or another they are there to stay. Employment in the service industries will increase more than in any other sector of the economy, and those industries have always had a higher proportion of women on their payrolls than any other. There will also be a large increase in employment in secondary manufacturing and here too the ratio of women to men has always been high. Largely because of the growth in employment opportunities we think that membership rates for women 25 years and over will rise very substantially, although differences in social attitudes will prevent them, we would guess, from climbing to the level at which they stand at present in the United States. Estimating membership rates for younger women is even more complicated, since major influences can be seen fairly clearly to be operating in opposite directions. On the one hand, there is the general movement towards greater participation of women in the labour force, which will affect younger

women as well as older. On the other hand, the desire for more schooling, for college educations and for earlier marriage and earlier motherhood will serve to restrict the movement of young women into the labour force. Attempting to resolve these opposing trends, we have supposed that the membership rate will decline in the age group from 14 to 19 and remain constant in the age group from 20 to 24.

Our forecasts about the labour force are summarized in Table 6.4.

Table 6.4

TOTAL LABOUR FORCE

(thousands)

Net immigration	1955	1960	1965	1970	1975	1980
50,000.....	5,555	6,150	6,850	7,710	8,610	9,560
75,000.....	5,555	6,210	6,980	7,910	8,900	9,930
100,000.....	5,555	6,270	7,110	8,120	9,190	10,310

It will be seen that we expect that by 1980 it will be in the neighbourhood of ten million. Perhaps the conclusion of most general interest that emerges from this part of our work is that, although since the end of the War the labour force has not been rising so rapidly as either the population as a whole or as the population 14 years and over, we expect it to rise at a slightly higher rate than both those magnitudes over the next twenty-five years. More detailed information about the labour force that we anticipate, particularly with regard to its age and sex composition, is provided in Table 6.5.

Age and Sex Distribution of the Population

In Table 6.3 and Table 6.5 we have presented information about the age and sex distribution of the population and labour force that we are forecasting. The implications of this material, however, perhaps appear more clearly in Chart 6.II, which shows the age and sex distribution of the population in 1955 and in 1980 on the assumption of net immigration of 75,000 per annum. We need not linger long over the sex distribution of the population. From the time of the earliest censuses there have been more males than females in Canada, and that will continue to be true over the period we have to survey. But the difference in numbers will be so slight as to have little economic or social importance. It is perhaps worth noticing, though, the matriarchal tilt that will be given to the top of the pyramid in 1980 by the fact that older women are living much longer than older men. The pyramid, in other words, will be built over the bodies of many dead husbands.

Table 6.5

**FORECASTS OF THE LABOUR FORCE
NET IMMIGRATION 75,000
(thousands)**

	Males						Females					Total male and females
	14-19	20-24	25-44	45-64	65+	Total	14-19	20-24	25-44	45-64	65+	Total
1955												
Civ. non-inst. pop. 14+	672	513	2,111	1,363	583	5,242	666	542	2,187	1,307	580	5,282
Membership rate (%)	48.6	92.3	97.5	91.7	32.4	82.0	32.9	46.3	23.7	18.8	3.9	23.8
In labour force	327	473	2,059	1,249	189	4,297	219	251	518	248	22	1,258
Not in labour force	345	40	52	114	394	945	447	291	1,669	1,059	558	4,024
1960												
Civ. non-inst. pop. 14+	860	540	2,260	1,560	660	5,880	810	560	2,320	1,510	690	5,890
Membership rate (%)	49.0	91.8	97.5	92.0	32.5	81.1	33.0	46.0	25.2	20.0	4.0	24.4
In labour force	420	500	2,210	1,430	210	4,770	270	260	580	300	30	1,440
Not in labour force	440	40	50	130	450	1,110	540	300	1,740	1,210	660	4,450
1965												
Civ. non-inst. pop. 14+	1,020	660	2,390	1,770	730	6,570	1,030	670	2,410	1,760	800	6,670
Membership rate (%)	48.2	91.4	97.5	92.0	32.0	80.5	32.4	46.0	26.5	21.5	4.0	25.3
In labour force	490	610	2,330	1,630	230	5,290	330	310	640	380	30	1,690
Not in labour force	530	50	60	140	500	1,280	700	360	1,770	1,380	770	4,980
1970												
Civ. non-inst. pop. 14+	1,180	840	2,600	1,980	820	7,420	1,180	840	2,570	2,000	920	7,510
Membership rate (%)	47.4	91.0	97.5	92.0	31.5	80.1	31.8	46.0	27.8	22.9	4.0	26.2
In labour force	560	770	2,530	1,820	260	5,940	370	390	710	460	40	1,970
Not in labour force	620	70	70	160	560	1,480	810	450	1,860	1,540	880	5,540
1975												
Civ. non-inst. pop. 14+	1,230	1,000	2,940	2,180	930	8,280	1,250	990	2,840	2,240	1,070	8,390
Membership rate (%)	46.6	90.6	97.5	92.0	31.0	80.2	31.2	46.0	29.2	24.3	4.0	26.9
In labour force	570	900	2,870	2,010	290	6,640	390	460	830	540	40	2,260
Not in labour force	660	100	70	170	640	1,640	860	530	2,010	1,700	1,030	6,130
1980												
Civ. non-inst. pop. 14+	1,310	1,070	3,430	2,330	1,060	9,200	1,300	1,060	3,310	2,380	1,260	9,310
Membership rate (%)	45.8	90.2	97.5	92.0	30.5	80.2	30.6	46.0	30.6	25.7	4.0	27.4
In labour force	600	970	3,350	2,140	320	7,380	400	480	1,010	610	50	2,550
Not in labour force	710	100	80	190	740	1,820	900	580	2,300	1,770	1,210	6,760

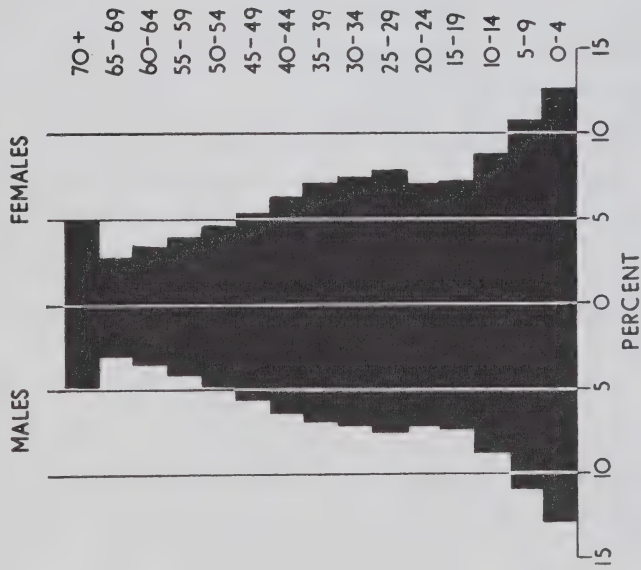
a Civilian non-institutional population aged 14 and over.

Source: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 4, Table 4.24, p. 188.

Chart 6.II

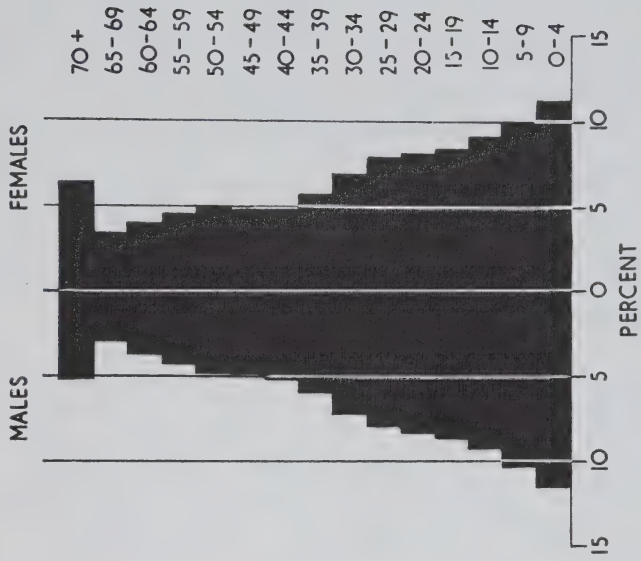
PERCENTAGE DISTRIBUTION OF THE POPULATION
BY 5 YEAR AGE GROUPS AND SEX — CANADA.

1955



PERCENTAGE DISTRIBUTION OF THE POPULATION
BY 5 YEAR AGE GROUPS AND SEX — CANADA.

1980



SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chart 4.1, p. 161.

The age distribution of the population will be of much greater importance. The pattern for 1955 reflects at the top of the pyramid increasing life expectancy, so that proportionately more people are living to the age of 70 and beyond, and in the bottom tiers the high birth rate since the end of the War and the sharp reduction in infant mortality. The indentation in the pyramid for the age groups between 10 and 20 reflects the low birth rates of the '30's. Over time this indentation will move up in the pyramid and appears in the pattern for 1980 as a relative scarcity of those in the age groups between 40 and 50. Throughout the forecast period, in other words, there will continue to be a relative scarcity of both males and females in some of the age groups that participate most fully in the labour force.

It is also worth noticing the senses in which the population in 1980 will be somewhat older than it was in 1955. At the end of the forecast period those over 50 will account for some 22 per cent of the population, whereas in 1955 they accounted for only about 20 per cent. There will also be relatively fewer people below 10 years of age in 1980 than in 1955. On the other hand, there will be relatively more people between 10 and 30 and relatively fewer between 30 and 50 than in the 1955 population.

Canadian Immigration Policy

The rate of population growth, it will have been observed, will be influenced to a substantial degree by the average annual level of net immigration. If net immigration amounts on the average to 75,000 a year, the population by 1980 will be 2½ million more than if it were augmented by natural increase alone. If net immigration averages 100,000, it will be 3½ million more than the total we anticipate from natural increase. Net immigration, in its turn, will be considerably influenced by whatever immigration policy is followed by the Canadian Government. For these reasons we have considered it part of our responsibility to pay some attention to the economic arguments for and against immigration, and to make some suggestions about what, in our opinion, should be the broad outlines of Canada's immigration policy.

The argument in favour of immigration that is open to the least dispute is that a substantial net inflow of immigrants will be needed over the next seven or eight years to compensate for the relative scarcity of native-born entrants into the labour force that will be coming forward during those years, and that this need will persist at least until 1970, although in a somewhat less acute form, if the deficiency in the labour force of younger adults in their 20's and 30's as a consequence of the low birth rate during the depression is to be made good. As we have already pointed out in Chapter 5, the number of those in the age group between 15 and 20, from which new entrants to the labour force are mostly drawn, has

remained virtually constant over the last 20 years and has fallen as a proportion of the total population. As a result of this fact, coupled with some continued emigration and a marked decline in membership rates in the labour force, it has been estimated for us by the Department of Labour that in the absence of immigration the total Canadian labour force would have declined in four out of the nine years between June 1, 1946, and June 1, 1955. Moreover, in the 12 month period from June 1, 1948, to June 1, 1949, the labour force would have declined slightly in the absence of immigration had it not been for Newfoundland's entry into Confederation. Over the whole nine-years period it appears that the Canadian labour force would have declined by about 40,000 if there had been no immigration and if Newfoundland had not decided to throw in its lot with Canada.¹³ Clearly, this would have put a drastic brake on Canada's economic development. By 1960 the number of native-born Canadians ready to enter the labour force will be relatively larger than it is at present and by 1965 it should be about as large as would be expected in a population the size of Canada's if the age distribution were reasonably symmetrical. If the relative lack of native-born Canadians as new members of the labour force is to be corrected, a substantial net inflow of immigrants will be needed. Even in 1970 there will be a relative deficiency of Canadians between the ages of 30 and 40, which immigration could help to alleviate since immigrants ordinarily include a much higher proportion of young adults than the Canadian population as a whole. In recent years, for example, more than half of the immigrants entering Canada have been between the ages of 20 and 40.¹⁴ It is also to be borne in mind that the effect of immigration on the labour force will be greater because immigrants as a whole have a higher membership rate than the native-born population. As is shown in the study that has been prepared for us on *Skilled and Professional Manpower in Canada, 1945-1965*, they have also included a higher proportion of skilled manpower than the labour force as a whole.¹⁵ This percentage may tend to decline somewhat in future; but in all probability it will remain substantially above the percentage of skilled workers in the total labour force. In a later chapter we give reasons for anticipating continued shortages of skilled and professional manpower. This expectation provides a further reason for continuing to encourage immigration over the next decade. To sum up, we accept without reservation the argument, first, that continued immigration will be needed until 1965 if the relative lack of native-born entrants to the labour force is to be made good and if the shortage of skills is to be overcome, and, second, that continued immigration will be needed until at least 1970 if the relative scarcity of young adults in the working population is to be corrected.

We also believe that immigration will add a useful degree of mobility to the Canadian labour force. In the Canadian economy labour mobility assumes a rather larger meaning than in many other countries. It means

being willing to move not only from one occupation to another but also over great geographical distances. It is not surprising that Canadians who are settled in one place with a job and family should be reluctant to move, for example, to a new mining camp in northern Saskatchewan or to a new lumbering community in northern Alberta, even though the financial inducements are large. Young Canadians just entering the labour force are more likely to be willing to take advantage of opportunities in the mines and the bush in distant parts of the country. But immigrants, eager to make a stake for themselves and their families, and who in any case have already left the communities to which they are accustomed, are more likely even than our own young men to be willing to work on the far fringes of our economic development. After a period of years no doubt many of them move south and settle in the larger cities. But in the meantime they have added a valuable degree of mobility to the Canadian labour force.

The arguments we have considered so far are of specifically Canadian application. Before going on to consider arguments of wider applicability, we should like to dispose of two other arguments that are rooted in Canada's geographical position. It is sometimes said that there is little advantage in encouraging immigration into Canada since its principal effect is to cause an exodus to the United States. This argument of course is given some colour by the fact that during some decades of our history emigration to the United States exceeded immigration to Canada. This was true, as we have already mentioned, of the period from 1871 to 1901. It is perhaps also worth remarking that, while from 1901 to 1955 approximately six million immigrants entered Canada, during the same period more than four million emigrants are estimated to have left the country. There is little reason to believe, however, that there is any very close connection between these two facts.¹⁶ Some immigrants, no doubt, have come to Canada with the intention of moving on to the United States, and others have decided to cross the border after staying in this country only a few years. But immigration and emigration are not connected by Archimedes' Principle. Some residents of Canada in any case would always be leaving to emigrate to the United States, although since the War this movement has declined to very modest proportions. Nor, in our opinion, should it be assumed that the Canadian economy has a fixed and ascertainable absorptive capacity at any one time and that if the flow of immigrants exceeds that amount, other Canadian residents will be forced out in consequence. The recent economic growth and prosperity of West Germany, achieved at a time when it has been absorbing millions of Germans from behind the Iron Curtain, would be sufficient reason for doubting any such notion. On the contrary, we are inclined to believe that the fact that some emigration from Canada to the United States is inevitable is an additional reason for encouraging immigration.

Another argument that arises from Canadian geography concerns overhead costs. It is sometimes contended that the great distances that have to be spanned by our government, transportation and communications systems load the national economy with heavy overhead costs and that immigration, by adding to the population and so reducing the per capita incidence of these, would lead to higher real incomes. There may be some substance in this argument, although we have not been able to think of any way of expressing it in quantitative terms. However, when we remember the very large expenditures on social capital which will be made necessary by the population growth we anticipate and which are summarized in a later chapter, we are disinclined to attach very much weight to it.

There remain for consideration arguments of wider possible applicability and of a rather more theoretical cast which resolve themselves into general propositions concerning the economic advantages or disadvantages of a larger population or of a rapidly increasing population. In some circumstances all these arguments, it seems to us, have a degree of validity. The question is: How far will they be valid in the circumstances that we foresee in Canada over the next twenty-five years?

It was argued by Malthus at the end of the eighteenth century, when population in England was growing very rapidly, that population growth would lead to poverty and starvation since it would increase more rapidly than the supply of food. His argument was predicated on a fixed stock of natural resources and on a fixed level of technology. Fortunately, his forebodings were falsified for most Western countries because population growth was outstripped by advancing technology and rising productivity made possible by the application of technology to industry through heavy capital investment. However, in some parts of the world it yet remains to be seen whether his analysis will prove invalid. There may be situations in Canada where it applies; but we can think of very few. One, perhaps, is in the Northwest Territories where the Mackenzie River empties into the Beaufort Sea through an intricate delta of lagoons with heavily undercut banks resting on the permafrost. The number of Indians living in the Delta has been rising rapidly as a result of the improved health services provided by the Federal Government. But there has been no increase in the population of muskrat which the Indians trap for a living. The situation is serious and highly Malthusian. Although the Malthusian argument hardly applies in its simple form to any Western country as a whole, it can be put in a more sophisticated way which some believe might apply even to such a dynamic economy as that of the United States. Professor Spengler of Duke University, for example, has argued that because of rapid population growth and rising per capita consumption in the United States, the time is approaching, if it is not here already, when growing population will slow down the increase in real income per capita and before

many decades have passed, reverse it. "The stork", as he puts it, "will eventually eat up much of the fruits of contemporary technological progress."¹⁷ That may or may not prove to be true of the United States. We doubt whether it will be true of Canada over the next twenty-five years. In the first place, our resources are very large relative to our population. Moreover, we export a large amount of what we produce and import a large amount of what we consume so that a growing population in Canada would have very little effect on the real cost of many of the commodities that are of concern to us. As our population grows, it seems likely that the real cost of hydro-electrical power, to take one example, or of meats and vegetables, to take another, will increase. But it seems unlikely that over the next two or three decades we will suffer in any substantial degree from diminishing returns.

If we will escape unscathed from the law of diminishing returns, will a larger population bring us advantages in the form of decreasing unit costs? On balance, we think it will. As our population grows and our domestic markets expand, there should be some reduction in costs because of opportunities for introducing more mass production methods. The increase in scale that will become possible with growing population will also, we believe, permit the establishment of new industries in Canada which would round out a more diversified economy. Optimism on this score, however, must be tempered by the recollection that the United States market will continue to be approximately ten times as large as the Canadian market, so that in particular lines of production where the optimum scale continues to increase, it may be difficult for Canadian enterprises to compete with businesses across the border unless they receive substantial tariff protection. However, over the last 15 years it seems clear that some Canadian industries, including the automobile and electrical industries, have been reaping the advantages of larger scale in the form of a fall in unit costs relative to those of comparable industries in the United States. With growing population, we would expect this trend to spread more widely through the Canadian economy. If it does, not only will real costs be reduced, but there will be room for new industries to become established. Such diversification, in our opinion, would be to Canada's advantage since it would give us more control over our own economic welfare than we have at present and make it easier to apply successfully policies designed to maintain high levels of employment and prevent inflation.

All these arguments relate to the advantages or disadvantages of a larger population. What of the arguments that turn on the advantages claimed for a rapidly increasing population? It has frequently been argued that a rapidly increasing population contributes to an expanding economy and general prosperity because of the high level of investment that it necessitates, particularly in such forms of social capital as houses and schools.

No doubt in some circumstances it does have that effect. But it must be remembered that similar effects might be produced through other means and also that, if the economy is already operating at full stretch, the need to provide social capital for a growing population can have inflationary results. However, we expect there will be periods over the next twenty-five years when we will be glad to take advantage of the need to provide social capital for a growing population in order to stimulate economic activity. Another argument that is frequently advanced in favour of a rapidly rising population is that the growing volume of demand that it creates facilitates technological change and innovation of all kinds. In such circumstances, it is easier for businessmen to scrap old plants and build new ones than it would be otherwise; and what Professor Schumpeter called the "gale of creative destruction", bringing with it increased productivity, blows more freshly. In Canada over the next twenty-five years a rapidly growing population would be likely, in our opinion, to promote innovation and so increase real incomes and, incidentally, keep further at bay the diminishing returns that Malthus feared.

The advantages to be gained from population growth might all be produced in the fullness of time through natural increase alone. But immigration can accelerate population growth to a very significant degree. We therefore conclude that it would be in Canada's interest to encourage immigration not only over the 10 or 15 years when there will be a relative scarcity of young adults in the Canadian population but over the whole of the forecast period. This conclusion has been reached on economic grounds. It is reinforced in our minds, however, by moral, social and cultural considerations. However it may be interpreted, Canada has some responsibility to open its doors to those who may wish to come here, particularly if they have suffered from oppression. We also think that a continued flow of immigrants bringing with them new skills, new arts, and new attitudes will add a welcome variety and richness to Canadian life. Nor is it futile in our opinion to try to increase, however marginally, freedom of movement throughout the world.

The economic advantages that we expect from continued immigration are not so substantial that they should be allowed to override legitimate concern for social harmony and orderly assimilation. But we do not anticipate that there should be any acute problems in assimilating numbers of immigrants within the magnitudes that we have been discussing. The work that is being done by the Canadian Citizenship Branch of the Federal Government to help new immigrants to adjust themselves to Canadian life has our full support; but in our opinion voluntary associations have also an important role to fill in this task and, indeed, all Canadians should recognize that they have some responsibility towards the newcomers.

Nor are the economic advantages to be expected from immigration so substantial that we should go into the highways and byways to bribe

or over-persuade citizens of other countries to come to Canada. The kind of immigrants we want are those who after careful study of the facts decide, of their own free will, that they want to become Canadians. We therefore support the present policy under which no subsidies are paid to immigrants, although help is given them in finding transportation and loans are advanced to meet their transportation costs. It may be, however, that there are foreign countries from which suitable immigrants might be drawn where the facilities for providing full and realistic information about Canadian living conditions and employment opportunities are inadequate. In that case, the Immigration Service should be strengthened to enable it to provide such information. If necessary, its personnel should also be increased in order to facilitate quicker processing of applications from would-be immigrants. The policy of not placing restrictions on the occupations in which immigrants may be entitled to engage should be continued, in our opinion. But the importance of encouraging immigrants with special skills can hardly be exaggerated under present circumstances when we are faced with serious shortages of many kinds of trained manpower.

On the other hand, it is our conviction that the economic advantages of continued immigration are substantial enough to justify an attempt to maintain a stable immigration policy even through periods of mild recession in Canada. Inevitably — and rightly, in our opinion — if there were a deep and widespread drop in employment in Canada, immigration would be either drastically reduced or suspended altogether. But, as we have suggested, there may be difficulty over the next two or three decades in obtaining as many suitable immigrants as it would be to Canada's advantage to have. The task would be made harder if our immigration policy, as expressed through regulations and administrative instructions, were to fluctuate with every minor fluctuation of business activity in Canada. Should the number of those wanting to come to Canada far exceed our expectations, such a stable policy as we recommend would clearly need to be reviewed. But if the number of available immigrants is roughly of the order of magnitude that we anticipate, we think that the interests of all Canadians would be best served by resisting the temptation to turn the administrative tap off and on with every temporary change in business conditions.

Implications of Population Growth

Before concluding this chapter, it may be convenient to draw attention to some of the implications of the population growth that we anticipate, although references to them will be found scattered through much of the rest of this report.

The flood of children born since the War is now swelling the primary and secondary schools and leading to a much greater demand for teachers

and the construction of many new classrooms. The crest of this wave will reach the universities about 1965, by which time enrolment may well be double what it is today, and university administrators are already planning for a large influx of additional students. The early 1970's will see a great increase in family formation as a result of the higher birth rate that followed the War, and this will call for another period of exceptionally rapid housing construction. Over the whole twenty-five year period heavy investment will have to be made in housing and other forms of social capital. Population growth will also be responsible for much of the new investment in industrial capital that will be required. Investment of both types will supply a continuing impetus to high levels of economic activity. To finance all this, very large amounts of capital, both domestic and foreign, will continue to be necessary.

As we have already suggested, rapid population growth will make it possible for many businessmen to replace their plant and equipment with new capital assets in order to take advantage of continuing innovation. In much of industry the attitude that will be required will be one of willingness to accept rapid obsolescence and constant eagerness to modernize the productive process. A different attitude will be appropriate on the part of those responsible for much public investment; and this should be encouraged, in our opinion, by the population growth that is to be expected. When it is a question of building a bridge across the Ottawa River near Parliament Hill, or a new City Hall in Toronto, or a hotel in the centre of Montreal, or a hospital in Quebec City, or a head-office building in Vancouver, the prospect of a rapidly growing population should encourage those who are responsible for planning such permanent structures to see that, in design and decorum, in fabric and finish, they will be worthy for many decades of a great country. In this way, we would hope that the expectation of a much larger population will help those in public life, and the public opinion to which they respond, to overcome what has sometimes seemed in the past to be a settled national aversion from doing anything decisive and costly.

Population growth will also have an effect on agriculture, both altering and brightening its prospects. Domestic demand will replace external demand as the principal stimulus to agricultural expansion and will lead to significant shifts in production, so that, even on the Prairies, Canadian agriculture will become more diversified. Secondary manufacturing which produces primarily for the domestic market, will also become more diversified as population grows. A higher degree of specialization will become possible. Real costs will come down. New industries will be established. Much of this development will be made possible by the creation of larger mass markets. But if consumers wish it and are able to make their wishes effective, population growth will also facilitate the creation of specialized markets. There will be room for shops offering special kinds

of food and books and furniture and records. Minority tastes in sport and recreation will be more fully satisfied. There will be more kinds of Canadian magazines and more kinds of Canadian radio and television programmes. Willy-nilly, we as a people are being swept from many of our old moorings. It is a paradox of population growth that, while it presents us with problems of social organization of great complexity, it also provides us with opportunities for recapturing old values in a different setting through the process of individuation in an industrial, urban society. If we have the strength and intelligence to grasp these opportunities, there will be strong strands to be woven into a national individuality — which, again, population growth should give us the self-confidence and the economic means to articulate and express.

ENERGY

NO IMAGE of modern industrial man can convey much sense of his economic state and possibilities that does not give a prominent place to those forms of energy on which his power depends. They are the orb and sceptre that more than anything else represent the degree of his sovereignty over nature. Without them there would be little economic difference between him and his forebears during the long centuries when there were only waterwheels, windmills and the energy of animals to supplement the strength in his own muscles. But when abundant energy resources are available and techniques are known for transforming them into power, his fortunes can change dramatically. No longer is he fettered by the relative impotence of his puny hands and one of the indispensable conditions for economic progress has been met. So the steam engine, the gas engine, the diesel engine, the turbine and generator have all to be seen in close relationship to modern industrial man as attributes of his increasing ascendancy over nature if an accurate impression is to be given of the process of economic development, a process which indeed can profitably be recounted in terms either of the successive prime movers that have been used in industry or of the various fuels — wood, coal, oil, natural gas — that have been consumed to make them turn.

The Coming Age of Nuclear Power

It seems clear that the world now stands on the threshold of a new era that will be characterized by a new prime mover and by new fuels. In some countries, the installation of nuclear power stations and the use of nuclear fuels will be of immediate industrial importance. In other countries they may not be supplying a large proportion of the energy requirements even twenty-five years from now. But in all countries the development of nuclear energy will banish the spectre of crippling shortages of heat and power and will set a ceiling on energy costs. Of themselves, these facts are so important as to justify speaking of a new age of nuclear power, no matter at what speed it makes headway against competing forms of energy.

During the next twenty-five years Canada's position in this new age may well be somewhat paradoxical. On the one hand, it should be in a position to participate fully in the peaceful application of atomic energy. Uranium is plentiful here, and the necessary scientific and technical competence is available. The wartime partnership with the United States and the United

Kingdom for the development of atomic weapons permitted Canadian scientists to participate fully and at a very early stage in solving the problems involved in building nuclear reactors; and further progress has been made on these foundations. The reactors at Chalk River, near Ottawa, have been used to carry out valuable theoretic and applied research. In addition, a nuclear power demonstration station is now being constructed for Atomic Energy of Canada and the Ontario Hydro, which by 1961 or 1962 should begin to feed electricity into the Ontario grid. The Canadian Government has also undertaken to supply a nuclear reactor to the Government of India as part of Canada's contribution under the Colombo Plan. There can thus be no doubt that Canada is equipped both with the natural resources and with the scientific and technical skills to enable it to put nuclear energy peacefully to work. On the other hand, it seems unlikely that any large proportion of Canada's energy requirements will be supplied by nuclear power until the period we are considering has almost reached its close. In the study that has been prepared for us on *Canadian Energy Prospects* it is estimated that by 1980 as much as one-third of all the new generating capacity being built in Canada may be powered by nuclear energy and perhaps 10 per cent of all the electricity being transmitted may come from nuclear stations.¹ But these figures will almost certainly be much less than comparable percentages for the United Kingdom, whose coal industry seems to be fighting a losing battle against the law of diminishing returns, for some countries in Western Europe which have long been deficient in energy resources, for Japan, and perhaps for a number of under-developed countries as well. The explanation is to be found in cost comparisons. The cost per kilowatt-hour of generating electricity by nuclear fission will in all probability vary little from country to country. But in most of Canada it will for many years remain higher than the cost of electricity generated by other means. In some areas of this country it will be cheaper to develop hydro-electric power at sites that have not yet been harnessed, while in other areas it will be cheaper to build steam plants fired by oil, natural gas or strip-mined coal. In the United Kingdom, on the other hand, and in a number of other countries nuclear power may fairly soon be cheaper than the only dependable alternatives.

The great appeal of nuclear power stations is the promise they hold out of low fuel costs. It remains to be seen, though, how great the advantage will be and how far it will be offset by high capital charges. From the technical point of view, nuclear power is to be classed with other types of thermal generation by which heat from the combustion of coal or oil or gas is converted into electrical energy. From the economic point of view, however, it bears a closer resemblance to hydro-electric power, since in both cases a high proportion of the total cost is represented by the fixed charges necessary to amortize the original investment. No doubt the capital costs of installing nuclear stations will drop fairly rapidly. But it seems likely

that it will be 1965 or 1970 before they have fallen far enough for electricity to be generated by relatively large stations (with a capacity of some 100,000 kilowatts or more) at a cost of between 5 and 7 mills per kilowatt-hour. At that price nuclear power could begin to compete in some parts of Canada either with hydro-electric power or with electricity generated in conventional thermal plants.

Large nuclear plants, it seems clear, will first come into commercial operation in Southern Ontario, where the annual increments in the demand for electricity are larger than anywhere else in Canada and where the end of cheap and accessible hydro-electric power has now been reached with the harnessing of the potential in the International Rapids Section of the St. Lawrence River. Now the only practical alternative to nuclear power in Southern Ontario is energy from coal-fired steam plants. While it is certain that many more conventional steam plants will have to be built and that imports of coal will rise sharply in consequence, it also seems clear that a number of relatively large nuclear plants will be needed before the next twenty-five years are out. Nuclear installations of this general scale may also be needed in the Maritimes and in Manitoba. In the Maritimes, nuclear power may be required for refining the base metals that have been discovered in New Brunswick, although, over the next decade or so, it would seem sensible to encourage the generation of electricity to meet these needs from coal mined within the area. For Manitoba there would seem to be a choice between developing the hydro-electric sites on the Saskatchewan and Nelson Rivers in the northern part of the province and building nuclear power stations near the principal market centres. In other provinces, a clear economic advantage will continue to lie with more conventional ways of producing electricity. There are large undeveloped water-power resources in the Province of Quebec, some of them very close to Montreal itself; and British Columbia has even larger untapped reserves of cheap hydro-electric power. Nor is it likely that nuclear plants will be needed for many years in either Alberta or Saskatchewan, since it seems clear that their electricity requirements will be met primarily by generating power either from oil, natural gas, or strip-mined coal. In more outlying parts of the country further removed from the urban concentrations where the demand for electricity is increasing most rapidly, there may well be need for smaller nuclear power plants of intermediate size with capacities ranging from 10,000 to 30,000 kilowatts. The principal purpose of such installations would be to provide both power and by-product heat (in the form of process steam) for new pulp and paper mills. One effect would be to remove the necessity that has hitherto kept such mills tethered to available water-power sites and to permit their location to be determined only by considerations of available timber resources and the most convenient transportation routes. At even greater distances still from the main centres of population in Canada there may well be a role for smaller nuclear plants with a capacity of from 2,000 to 3,000 kilowatts. These would be

substituted for diesel plants and would be primarily used by mining camps in the far North.

Although nuclear power will be of only limited economic importance in Canada over the next twenty-five years, we have thought it wise to begin this chapter by considering it, partly because of the great importance it will have in the more distant future, partly because the situation in some other countries during the next two or three decades will be very different than it will be here, and partly because even a brief discussion of the uses that may be found for nuclear power in competition with other forms of energy may throw some light on technological changes that have important cost and policy implications for the whole energy field. The most obvious change now occurring is that a new form of energy is being domesticated for use anywhere in the world. The cost of this new energy may with some confidence be expected to decline decade after decade. At the same time, the cost of hydro-electric power, which has always been comparatively cheap, will be rising as the remaining resources to be brought into production lie further and further away from the main centres of population. A counterpart of this trend is the declining cost of power produced in conventional steam plants as a result of improvements that have increased their thermal efficiency. The net effect of these changes is a general tendency for power costs to level out. This trend is reinforced by other technological changes that are cutting the cost of transporting energy in both its basic and more highly processed forms. The best illustration of this has already been referred to: the cost of transporting atomic fuel is so negligible as to impose no restriction on where an atomic reactor may be located. But other developments tending in the same direction have also been significant. Large-diameter pipeline have made it economical to move oil and natural gas longer and longer distances overland, while supertankers have cut transportation costs for water-borne oil. Even electricity can now be transmitted over greater distances as a result of new techniques making use of higher voltages with both alternating and direct current. In somewhat the same way as research in raw materials is bringing into view an age in which almost anything can be made from anything else, so developments in the energy field are bringing into view an age where power will be universally available, abundant and cheap. That day is not yet and may not have arrived even twenty-five years from now. It is rather an asymptote to which present trends are approaching. But even now it may occasionally be useful when policy questions affecting the next two or three decades are under consideration to allow them to be influenced by our growing proximity to a time when cost contours will have been largely eroded away and when power will be available in every country of the world on something like equal terms.²

The Future of the Fossil Fuels

For Canada over the next quarter century the central development in the energy field will be a great increase in the production, consumption

and export of oil and natural gas. Our reserves of these fossil fuels, although very large, are not of course inexhaustible; and it may be that in retrospect this period will seem little more than an interlude. But it promises to be a good feast while it lasts. Certainly it behoves us to try to make the most of these resources which are altering the size and shape of the Canadian economy and which for the first time are providing us with an abundance of energy within our own borders.

Water-power has figured so largely in the Canadian mythology that we have sometimes been bemused into thinking that we have had abundant sources of energy. There has been water-power in abundance, it is true; and this has helped to promote the growth of the Canadian economy from the earliest days when settlers depended on falling water to provide the power for their flour mills, grist mills, saw mills and distilleries, until more recent decades when it was cheap hydro-electric power that attracted chemical industries to the Niagara Peninsula and provided the basis for the location of very large aluminum plants in Quebec and British Columbia. But hitherto there has been a scarcity rather than an abundance of sources of energy in Canada. Although Canadian industry has obtained the energy it needed in the form of power mostly from hydro-electric plants and for this reason has had the advantage of relatively cheap power, it has relied — like the industry in many other countries — mainly on coal to provide it with energy in the form of heat and has had either to obtain it from Canadian collieries situated at long distances from the chief concentrations of industry in Canada or else import it from the United States or, occasionally, from other countries. The same has been true of residential and commercial consumers. Similarly oil has had to be imported over long distances. As a result, the average cost of energy in Canada has run as much as 50 per cent higher than in the United States.³

The discovery of large fields of oil and natural gas on the Prairies, beginning with the discovery made at Leduc near Edmonton in 1947, has changed legend to fact. There is now an abundance and variety of energy resources in Canada; imports are declining as a proportion of total energy requirements; and in many parts of the country the average real cost of energy has been falling both absolutely and in relation to costs across the border.

a) Oil

So far the principal part in producing this transformation has been played by the oil industry. Since 1947 exploration and development has proceeded so rapidly that by 1955 production had increased twentyfold, reaching in that year an output of 130 million barrels. Because of lack of markets, output has been held at a level some 40 per cent or 50 per cent below what is considered by petroleum engineers and conservation authorities to be the "maximum efficient rate" of recovery. If Canadian wells

had been producing in 1955 at that optimum rate, their output would have been sufficient to supply in full Canada's requirements of crude oil. But in spite of the large percentage of production that has been "shut-in", Canadian oil has been flowing to supply many regions in this country and to meet some requirements in the United States. The Inter-Provincial Pipeline brings oil from the Prairies to refineries in Sarnia and Toronto and as it passes through the United States provides oil for the Minneapolis-St. Paul area and other points along the route. The Trans-Mountain Pipeline brings oil from Edmonton through the Rockies to Vancouver and also supplies refineries in the State of Washington. At present the only parts of Canada dependent on foreign sources of supply for their requirements of crude oil are Newfoundland, the Maritime Provinces, the Province of Quebec and the Montreal market, including some parts of Eastern Ontario. The following 1955 figures may perhaps indicate sufficiently the growing size of the Canadian oil industry: in that year recoverable reserves amounted to 3,000 million barrels, the value of crude oil production was more than \$300 million, and the new capital invested in all phases of the industry was more than \$450 million.

Those are large figures. But they may seem larger in Toronto or Calgary or Ottawa than they do in New York. The Canadian oil industry provides employment for many Canadians and stimulates activity in many parts of the Canadian economy. But for the most part it is owned and controlled in the United States. If its dimensions and problems are to be seen in perspective, an effort must therefore be made to regard it with binocular vision, to see it as it appears not only to a Canadian but also to the major United States oil companies with interests in many parts of the world. In the board room of such a company the horizons are wider and the pressures different — although not necessarily all less parochial — than they would be in Canada. In that setting, the figures for Canadian production and reserves, while still significant, dwindle a little. Canadian production in 1955 was only approximately one-twentieth of production in the United States and one-sixth of production in Venezuela. It was also far outstripped by production in Kuwait, Saudi Arabia and Iraq. The figures for reserves, although less reliable, are perhaps even more indicative of the relative importance of the major oil fields throughout the world. In mid-1956 Canada is estimated to have accounted for between 1 per cent and 2 per cent of the world's proven reserves. Venezuela, on the other hand, accounted for more than 6 per cent; Iraq for more than 7 per cent; Iran for almost 13 per cent; the United States for 15 per cent; Saudi Arabia for almost 20 per cent; and Kuwait for almost 25 per cent.

Not only are the great Middle Eastern oil fields much more extensive than anything known in the Western Hemisphere, but because of the size of the individual pools, oil can be produced from them much more cheaply

than elsewhere. That fact, however, finds little reflection in world pricing policies followed by the major United States companies,⁴ which are naturally influenced by United States defence considerations and by public opinion in the United States, including that part of it which is responsive to the claims of the independent oil companies. It would seem that the principal purpose of these pricing policies is to maintain a high level of prices for producers in the United States as a means of sustaining a rapid rate of domestic exploration and hence a satisfactory reserve position.⁵ The price of Canadian crude oil is tied into this system by being related to the price at which oil from the Mid-Continent area in the United States can be delivered at Sarnia. But this consistency in price throughout North America conceals significant cost differences. Comparisons which have been made for us with help from the industry and which are to be found in Chapter 7 of *Canadian Energy Prospects* suggest that the cost of finding a barrel of oil in Canada is substantially less than in the United States and also that the profit to be made on each barrel is higher in Canada than in the United States, in spite of the longer distances that Canadian oil has to travel to reach its markets. From the first fact it may be inferred that there will be a continuing inducement for the large international oil companies to devote some of their large resources to further exploration and development in Western Canada. The second fact suggests that it should be to their advantage to try to widen the markets for Canadian oil in the United States. On the other hand, it must be recognized that moves in that direction may well be restrained by widespread reluctance across the border to disturb the system of prices that now insulates United States producers.

That is one strand in the triple barrier at present protecting the United States market. Another is the United States tariff of 5¼ cents per barrel on heavy gravity crude, 10½ cents per barrel on light gravity crude, and higher rates still on refined petroleum products. Still a third protective strand is the seldom absent threat of import restrictions and the system of voluntary restrictions that has been introduced under the sponsorship of the United States Government to take its place. For defence and other reasons such voluntary restrictions by United States importers have had little effect in practice on the flow of Canadian oil across the border. But as we were told in evidence by the President of Imperial Oil Limited, "actions of the United States Government which indicate uncertainties or possible restrictions in the free importation of Canadian crude could be expected to have a discouraging effect."⁶ They certainly could.

The most logical new markets for Canadian crude oil are to be found in the United States — in the Detroit and Toledo area, in the Chicago area and in California. We are confident that, well before the end of the period we have to consider, growing United States demand will result in Canadian crude meeting some of the needs of those markets as well as the increasing requirements of the areas it now helps to supply. But wider

access to United States markets will not be easy and the vigorous action, involving price adjustments, that would make it possible may be hampered by the subsidiary relationship of the principal oil companies operating in Canada. In that event "shut-in" capacity on the Prairies will grow and there will be strong pressure to open the Montreal market to crude oil from Western Canada even at some sacrifice in terms of price to the producers. At present, this market is supplied by imported oil which comes in either by tanker or over the pipeline from Portland, Maine, and enters Canada duty free. In our opinion, it is possible that if Canadian oil were long balked of alternative markets, the Canadian Government might well decide to take action which would result in a larger share of the Montreal market being supplied by Western crude.

To the international oil companies with operations in many parts of the world, it may not seem a matter of great urgency or concern whether large new markets are found for Canadian oil. They can supply all these markets from other sources and through other companies with which they are associated. They might even prefer to increase almost indefinitely their reserves of oil in Canada and draw down their reserves elsewhere. Also, as we have suggested, they are under pressure within the United States to do nothing that might disturb domestic prices there. In our opinion, however, it is clearly in the Canadian national interest that new markets be found. Only in this way can there be assurance that a steady and rapid pace of exploration and development in Canada will be maintained. Only in this way can early advantage be taken of this great natural resource and its exploitation not left to the hazards of an uncertain technological future. Above all, it is only in this way that a place can be left within the Canadian oil industry for the independent Canadian producers, who, unlike the large international companies, must receive some return on their investment in Canada if they are to stay in business and not be forced to sell out to the foreign-owned companies, which already hold such a high proportion of all the acreage now under reservation or lease in Western Canada. It would seem that here is one instance, as is suggested in the discussion of foreign investment in a later chapter, where there might easily be some divergence between the Canadian national interest and the interest of foreign companies operating in Canada.

At the end of 1956 approximately 75 per cent of the proven oil reserves in Western Canada were controlled by six of the largest international companies; and the same six companies held between them about 40 per cent of the gross acreage under reservation or lease in Western Canada. At the same time over 85 per cent of the total refinery capacity in Canada was also subject to foreign ownership and control.⁷ The large international companies have gained such a dominant position in the Canadian oil industry partly because of their large financial resources, partly because of the technical and managerial competence at their com-

mand, and partly because they have had the enterprise to see opportunities and to take advantage of them. But from the evidence presented to us and the studies made for us, we have also been convinced that one reason Canadians have not played a larger part in the development of our petroleum resources has been that the position of Canadian individual and corporate investors under Canadian tax law has been less favourable than the position of United States investors under United States law. We have suggested a number of ways by which these disparities (many of which also affect the natural gas industry) might be reduced. In our opinion these matters are of considerable importance; but since they are also highly technical, we have judged that the convenience of most readers might be best served by discussing them in an appendix.*

We have paid special attention to the oil industry in this way because it seems destined to become one of the most important in the country and may show a tenfold growth in output between 1955 and 1980 in response to strong domestic and foreign demand. Since the end of the War, Canadian consumption has grown at the phenomenal rate of approximately 12 per cent annually. Although that rate of increase will not continue, there are good reasons for anticipating large continued growth in domestic demand. It will be sustained not only by population growth but also by an even more rapid spawning of automobiles. In the study made for us of *The Canadian Automotive Industry*, it has been estimated that by 1980 there may be one passenger car registered for every three members of the population, instead of one car for approximately every six, as at present.⁸ It is that outlook more than anything else that accounts for the increasing domestic consumption that we foresee, although increasing quantities of petroleum products will also be needed for other types of transportation, for residential and commercial heating and for use in industry. The growth of foreign demand is more difficult to forecast. But we assume that at least by 1965 larger markets should be opening up across the border and that sales to the United States should be accounting for the major part of the increase in total Canadian production. By 1980 Canadian output may well be about 3 million barrels a day. Of this amount perhaps 1,600,000 barrels would be exported and 1,400,000 barrels consumed in Canada.

There is little doubt that there is plenty of oil in Canada to support production of that order of magnitude. The Western Canada sedimentary basin, stretching from Norman Wells in the Northwest Territories to Red Coulee in southern Alberta and from Fort Saint John at the western end of the Peace River district to Virden in Manitoba, contains approximately 750,000 square miles; and that whole area is considered to be favourable for the discovery of oil. The tempo of new discoveries will no doubt be set at least in part by the rate at which markets open up. But unless the claustrophobia from which the Canadian oil industry is now suffering is to be

* See Appendix H.

more prolonged than we anticipate, there would seem nothing unreasonable in the estimate that as much as 25 billion barrels of oil will be found in Western Canada over the next quarter century, and that about half of this amount will still be in place as proved reserves in 1980. In addition, it is always possible that some of the drilling at present being carried out in Eastern Canada will be successful. In any case, there will always be the vast oil reserves known to occur in the bituminous sands of northern Alberta to draw on if our other petroleum resources fall short of our expectations or if the costs of exploration and development rise more rapidly than we are inclined to anticipate.

b) Natural Gas

In Canada as in the United States the natural gas industry has grown up in the shadow of the oil industry. This is because natural gas is often found in the same pools with oil and even when it occurs independently has more often than not been found as a by-product of the search for oil. In that case the cost of finding it is written off against the cost of petroleum exploration; and until comparatively recent years it was either flared off as waste or sold at very low prices for various local purposes. The development of large-diameter, high-pressure steel pipe and of special pipe-laying machinery changed all that. As wider markets were found for natural gas, higher prices could be charged for it at the well head, and it began to appear more and more as a competitor with petroleum products. The higher prices it could command in turn made it worth while to search for natural gas as an end in itself rather than as a by-product of the search for oil. Finally, the oil companies felt some inclination to divest themselves of their holdings of natural gas in order to escape the attentions of the public regulatory bodies, which have had to be concerned with the marketing of natural gas because of its inevitably more monopolistic character. In Canada the two industries are not yet so distinct as they are in the United States, but many signs of the coming separation are already apparent. Of Canada's presently proved recoverable reserves, some three-quarters can now be regarded as independent of crude oil production. Some prospecting and drilling has also been done with natural gas as the principal object of the search. And in Canada, as in the United States, the pipeline companies are now assuming a dominant position in the new industry. With the pipeline of the Westcoast Transmission Company completed from the Peace River area to Vancouver and the United States border, and with the Trans-Canada pipeline completed to Winnipeg and under construction to Toronto and Montreal, the natural gas industry in this country may be said to have come of age.

Hitherto the use of natural gas has been confined to the Prairies and, on a much smaller scale, to southwestern Ontario. Now the groundwork is

* The possible reserves to be found in the Athabasca tar sands are variously estimated at between 100 billion and 300 billion barrels.

being laid for a national industry. As a result, average per capita consumption in Canada may be expected to rise very rapidly. In 1955 it stood at approximately 10,000 cubic feet; by 1980 it may well have risen to 75,000 cubic feet, and at that rate, total domestic consumption twenty-five years from now would amount to two trillion cubic feet annually.

Wherever it has been introduced, natural gas has won wide preference for residential and commercial use as the cleanest and most convenient of all fuels. It is also regarded as a premium fuel by a number of industries that value it not only for those qualities but also for the exact temperatures that can be reached and maintained with it and for the ease with which it can be automatically controlled. In the United States primary steel mills are beginning to use natural gas more in their open hearths instead of residual oil. Other metallurgical plants are employing it both as a source of process chemicals and for the generation of heat. Brick plants and glass producers prefer natural gas over other fuels on grounds mostly of quality. In the processing of foods its cleanliness is an advantage. Secondary manufacturing industries engaged in the fabrication of metals and the production of secondary chemicals also prefer natural gas when it can be obtained at a price comparable to that charged for oil.

Already natural gas is being used for many of these special purposes by Canadian industry, and as it becomes more widely available, such markets for it will grow as well as the demand for it as a preferred source of residential and commercial heating. In addition, of course, it will continue to be important for operations in the oil and gas fields themselves and, within a limited radius of them, to be used as a raw material by many petro-chemical industries and as a fuel by such heavy industrial consumers as oil refineries, cement plants, and some thermal generating stations. In all these respects the pattern of use will be very similar to that already established in the United States. But there may well be one significant difference. In much of central Canada, industry is accustomed to paying much higher prices for its fuel than are paid on the average in the United States. For this reason it seems probable that even some of the largest industrial users of fuel in Canada, such as pulp and paper mills and metallurgical plants lying at great distances from the gas fields, will be prepared to contract for very large volumes of natural gas. Indeed, some contracts of this kind have already been negotiated.

Wide availability of natural gas will obviously affect the consumption of other fuels and the prospects of the industries that exist to provide them. The area of competition with oil will be fairly wide, although the largest single market for petroleum products — in transportation — will be immune, since natural gas cannot readily be used to drive automobiles, aircraft, ships or locomotives. On the other hand, some of the natural gas liquids (i.e., propane, the butanes and natural gasoline) which are stripped from natural gas in the cleaning process, are well suited to drive

internal combustion engines and may capture at least a fraction of the present market for refined gasoline and diesel oil. Heavy residual oils used as industrial fuel will also be displaced in some instances by natural gas. Much more important, however, will be the competition between natural gas and the middle distillates which are used for residential and commercial space-heating. If the experience of the gas-producing areas in the United States can be taken as a guide, it seems likely that natural gas will be widely used for these purposes throughout the Prairies to the virtual exclusion of fuel oil; and to a lesser, although very considerable, degree, it will be used in place of oil for space heating in other parts of the country as well. The effect of this competition, however, may be reflected less in the output of Canadian refineries than in the volume of imported petroleum products, since the severity of the Canadian winter has made it necessary to import large quantities of fuel oil during the season of peak demand. The Canadian oil industry will also, of course, have the consolation of drawing additional revenues from the sale of the natural gas it will continue to have as a by-product from its field operations.

The consequences for the coal industry will be more serious. For space-heating purposes, natural gas enjoys an even clearer preference over coal than over oil and will displace some sales of coal to residential and commercial consumers as it becomes available. It will also reduce the demand for coal as an industrial fuel, particularly in the summer time when the demand for natural gas slackens and lower than average rates can be quoted for sales to industrial users. In many cases large steam plants, particularly those at a distance from the gas fields, will still find it cheaper to use coal for the generation of electricity. The impact on the coal industry will thus be selective and vary according to location. But there can be no doubt that competition from natural gas will cut into many of the volume markets for coal and, in so doing, tend to hold down both sales of Canadian coal and imports from the United States.

In spite of the very rapid growth that we anticipate over the next two or three decades in Canadian consumption of natural gas, reserves are likely to grow even more rapidly and make possible substantially larger exports to the United States than are now being contracted for. The growth of reserves will be a function of the demand not only for natural gas but for crude oil as well; it will also be affected by the government policies pursued in both Canada and the United States; so that any estimate must be subject to a wide margin of error. It would seem plausible, however, to expect reserves of natural gas to increase over the period from 21 trillion cubic feet in 1955 to perhaps 100 trillion cubic feet in 1980. If that estimate is not too wide of the mark and if Canadian consumption runs at about the rate we have forecast, the amount available for export twenty-five years from now might be one trillion cubic feet annually or about half the amount likely to be marketed in Canada. Since 1951 gas

from southern Alberta has been meeting some of the requirements across the border in Montana. United States companies have also contracted to take gas from the Westcoast Transmission Company for sale in Washington and Oregon and from the Trans-Canada Pipe Line Company for sale in the states of the Middle West. In all three of these areas — the Pacific Northwest, the Mountain states and the Middle West — substantial growth in demand is expected and it seems probable that Canadian natural gas will be needed to provide a large part of the increase.

No doubt, as time goes by, more attention will be paid to the terms under which gas is exported. In our opinion, Canadians hitherto have been insufficiently aware of some of the influences that have been operative in setting prices. In one instance, Canadian gas is being supplied to industrial users across the border at very low prices under the terms of a contract negotiated with a supplying company in Canada which forms part of the same corporate structure as the public utility purchasing the gas and the industrial enterprise that is the principal user. In other cases, a pivotal role in setting prices has been played by the United States Federal Power Commission, which has the duty under the Natural Gas Act, in its own words, "to protect the American public in all possible respects through the regulation and control of the transmission and wholesale sale of natural gas".⁹ If the Federal Power Commission with its public and quasi-judicial procedures for investigating both the engineering and economic aspects of proposals for importing gas into the United States finds against a Canadian proposal, the would-be suppliers in Canada may have no alternative but to come to a different agreement with prospective purchasers in the United States on terms less advantageous to themselves but more likely to be approved by the Commission. The present system of export licensing by the Canadian Government would seem to be an inadequate counterweight to this bargaining advantage held by United States companies wanting to purchase Canadian gas; and in our opinion, the bargaining position of Canadian suppliers might well be strengthened by stronger institutional arrangements within the Canadian Government in accordance with a proposal made later in this chapter.

c) Coal

The difficulties from which the Canadian coal industry has been suffering have been largely due to the competition that coal has been meeting from other fuels. So recently as 1950, the railways were burning approximately 25 per cent of all the coal consumed in Canada;¹⁰ but that market has been shrinking rapidly as the railways have been dieselizing their operations and will have virtually disappeared by the early 1960's, when the night sky in Canada will no longer echo to the wail of steam locomotives. Coal has also been losing out, as we have mentioned, to oil and natural gas for residential and commercial space-heating; and growth

of its industrial markets has been held in check by sharp competition from the other fossil fuels. In part, however, the industry's difficulties have been due to production problems. This has been true, for example, of the coal mines in Nova Scotia. In Pictou and Cumberland counties, many of the seams pitch steeply and the workings are gassy and troubled with faults. In Cape Breton, the mines dip out under the sea for many miles and in some cases it takes two hours to travel back and forth between the pithead and the mine face.¹¹ These circumstances have not only created operating difficulties but have also added to labour costs. Obviously coal miners must be paid wages at least roughly commensurate with those paid in other industries, but to do so and yet meet the stiff competition being offered by other fuels has nowhere been easy and has been particularly difficult in those areas where the general level of wages has been high and alternative employment readily available.

It has been widely recognized in the industry, both by labour and management, that the only way these problems can be overcome is by increasing productivity. Wherever it has been possible to produce coal by strip-mining methods with the new heavy power-shovels and earth-moving equipment that have become available, output per man-day has been much higher than in the underground mines and has raised the general average. These are the methods used, for example, in the lignite fields in southern Saskatchewan and in the Minto field in New Brunswick. But it is easier said than done to increase productivity in many of the underground mines in both Eastern and Western Canada. Because of their structure, the major mines in Nova Scotia are unsuited to the room-and-pillar method of mining which is almost universally used in mining the larger seams that are common in the United States, so that much of the machinery developed for use across the border cannot be employed. The Nova Scotia mine operators, however, have shown enterprise in developing new cutting and loading machinery that can be used with the longwall system of mining and in undertaking, with the assistance of loans from the Canadian Government, an extensive investment programme to mechanize their operations more fully and efficiently. In the study prepared at our request on *The Nova Scotia Coal Industry*, it is estimated that as a result of this programme of modernization, output per man-day in the mines concerned (which account for approximately 90 per cent of all the coal produced in Nova Scotia) increased by 47 per cent between 1945 and 1955. At the same time, however, productivity in United States mines was increasing even more rapidly, so that the differential between costs at the pithead in Nova Scotia and in competing fields in the United States tended to grow. During our hearings in Halifax, we were told by one of the representatives of the Dominion Steel and Coal Corporation Limited that the cost of production at DOSCO collieries in Nova Scotia was a little more than double the cost of production in the United States.¹² One consequence of this and of rising transportation costs

has been a sharp increase in the subsidy paid by the Canadian Government on Nova Scotia coal moving into central Canada, since the payment per ton is related to the laid-down price at Canadian points of coal imported from the United States. However, since there is a maximum on the amount payable per ton, another consequence of the widening gap between the cost of Nova Scotia and United States coal has been some contraction in the market area in central Canada available to coal from Nova Scotia. The subsidy paid to enable coal from Western Canada to move to Ontario has also been rising while the available market has been somewhat contracting. The very buoyant labour market in Western Canada has also meant that the difficulties facing the coal mines there have led more rapidly to the abandonment of mines than has been the case in the Maritimes. In Nova Scotia, only two important pits so far have been closed. In Alberta, on the other hand, 16 mines were abandoned in 1955; and the total output in Western Canada declined by about 40 per cent between 1948 and 1955.

We see little immediate prospect of wider Canadian markets for coal. The railways' requirements will continue to decline; oil and natural gas will make new conquests; and these losses will outweigh the additional quantities that will be burnt in thermal generating plants, used for coking purposes in steel-making and other metallurgical industries, and possibly exported. It is for this reason that in a later chapter on regional development in Canada we put forward some suggestions for readjusting the basis on which subsidies are paid on shipments of Nova Scotia coal. The purpose of these suggestions would be to maintain for it something like its present volume of sales, while avoiding any substantial increase in the total amount of subsidy paid and so to keep to a minimum the social dislocation that might be caused by falling demand.

Further ahead the outlook for coal is brighter. The reasons for this are simple. Total energy requirements in Canada may be expected to compound at only a slightly lower rate than the Gross National Product. Increasingly over the next quarter century these requirements will be met by oil and natural gas; but however large Canada's resources of these fuels may be, they are certainly exhaustible and almost certainly less, when expressed in terms of the heat they can produce, than the coal reserves which in some circumstances it might prove economic to recover. Sooner or later it must be anticipated that in Canada as well as in the United States the real cost of finding oil and natural gas will begin to mount in the same way as the real cost of hydro-electric power is already beginning to move upward. As energy requirements increase and as oil and natural gas become relatively more expensive, coal will begin to come into its own again. Already the shape of what is to be expected in Canada in the latter part of the period we are considering may be seen in the United States, where large chemical and aluminum companies are beginning to buy up coal fields to meet their future needs.

It must be recognized, however, that this change will first affect the volume of coal imported from the United States rather than Canadian production. Under existing subsidy arrangements, coal from Nova Scotia is not marketed further west than Ottawa and coal from Western Canada is not marketed further south than Sault Ste. Marie. But the largest increases in demand will all be in Southern Ontario and no doubt will be met by larger shipments from across the border. Imports of coal will probably begin to rise substantially by about 1965, while it may be 1970 or a few years later before the Canadian coal industry begins to feel the effects of increased Canadian demand. It must also be recognized that the Canadian coal industry which we expect to be of growing importance twenty-five years from now will differ markedly from much of the industry we know today. For the most part, it will be geared to supply the requirements of large industrial users who will be less interested in the rank of coal they burn than in its uniformity. Coal operators in consequence will be drawn by preference to fields of uniform texture which can be mined with relatively low labour costs by open-pit methods. Where that is not possible, there may be inducement twenty-five years from now to convert mined coal at the pithead into electricity or synthetic gas or oil, or to gasify it underground.

Capital Expenditures of the Energy Industries

In an earlier chapter, we remarked on the large capital expenditures that are often necessary to exploit the latent potential in our natural resources and bring them into relation to the economic process. That is conspicuously true of the energy industries. As we were reminded during the public hearings by several of the oil companies, between 1946 and the end of 1955 the oil industry in Canada invested over \$3,000 million in its efforts to find, produce, transport and process its products.¹³ Over the same period, capital expenditures by a single electric power corporation, the Ontario Hydro, on generating stations, transmission lines, transformer stations and other facilities required to deliver power to its customers amounted to more than \$1,250 million.¹⁴ In 1955, the value of new capital investment in all the energy industries is estimated to have totalled approximately \$900 million. Of this total, more than \$400 million was invested by the oil industry, about \$100 million by the natural gas industry, and more than \$400 million by the electric power industry. In that year, the nation's fuel and power industries were investing approximately \$1 out of every \$7 being spent on the creation of new physical assets in Canada. It seems likely that over the next two or three decades, new investment in the energy sector will increase relative to the total of new investment in all Canadian industries and that by 1980 as much as \$5,000 million may be spent annually on exploration and development, production, processing, transportation, distribution and marketing.

Electric power is the most highly processed form of energy and requires correspondingly large amounts of capital for its production and distribution. That is one reason why we expect new investment by the electric power industry to continue to account for not much less than half of all the capital expenditures in the energy sector of the economy. Another reason is the virtual certainty of rapidly growing demand for electricity. Since the War, there has been a greater increase in the use of electricity in households than for any other purpose; and it seems likely that domestic demand will continue to grow very rapidly as the number of households increase, as they come to be more fully equipped and as new appliances appear on the market. As we will see in the next chapter, use of electricity in agriculture will also grow and spread in sympathy with the decline in the farm labour force. Other industries will have even larger demands for electric power. Canada's pulp and paper mills and its smelters and refineries for non-ferrous metals at present consume about 40 per cent of all the electricity used in this country. They will continue to have growing needs for very large blocks of electric power, although the proportion of electricity used for making pulp and paper will fall over the next twenty-five years and although the great growth we expect in smelting and refining capacity in Canada may be checked by decisions to make use of cheap hydro-electric power in other countries for refining light metals. In the aggregate, however, the amount of electricity needed for these two purposes in Canada will be very great. The secondary manufacturing industries will also have large requirements, since many of them are heavy users of electricity and since this sector is likely to increase in relative importance. To sum up, we have thought it reasonable, after giving some consideration to the various uses of electricity, after examining the record of increasing consumption in recent decades and after pondering the correlations between growing demand for electricity and growth in the Gross National Product and in the labour force, to conclude that on the average over the next quarter century the annual increase in the use of electricity will be of the order of 7 per cent. This will necessitate large new investments year after year in generating capacity and in transmission and distribution facilities. By 1980, such capital expenditures may be running at the rate of some \$2,000 million annually.

If electricity requires more capital for its production than any other form of energy, it is equally true that to produce it from water-power requires more capital than to do so in any other way. It is estimated, for example, that since 1950 the average investment per installed kilowatt of generating capacity in Canada has been \$225 in the case of hydro plants and \$125 in the case of steam plants. In spite of this, there will continue to be good reasons for making the very large capital outlays needed to develop new water-power resources. For, while the margin between the delivered cost of electricity produced hydraulically and by

thermal means has been narrowing, it is still substantial, provided that hydro power does not have to be transmitted over too great distances. Moreover, once a hydro station has been built, the costs of operating it are predictable over a long period of time, being affected very little by changing labour costs and not at all by changing fuel costs. We are therefore certain that many of Canada's remaining water-power resources will be developed before the next twenty-five years are out.

It is not so simple as might be thought to estimate how much undeveloped hydro power is still available. In 1955, installed turbine capacity in Canada amounted to approximately 13 million kilowatts; and in that year it was officially estimated that the total of available water-power, both developed and undeveloped, was between 37 million and 38 million kilowatts. For a number of reasons, however, that estimate must be regarded as being highly conservative. It is based on calculations only of the power available at sites where the flow has been measured over a period of years and where the foundations for the dams that would be necessary have been tested; it leaves out of account some of the additional capacities that could be made available through the greater use of storage and stream regulation; and it makes no allowance for possible diversions from one watershed to another of the kind successfully employed at Kitimat. Omitted, for example, from the calculations is the great head of power available at Grand Falls in Labrador, which we saw as we flew from Goose Bay to Knob Lake. There the Hamilton River, as it flows eastward towards Lake Melville through a high tableland, turns slightly in its course and plunges straight down more than 250 feet into a long deep gorge with spruce-wooded banks where snow lies in patches all summer long. The development that is projected at this site would eventually have a capacity of more than three million kilowatts. One cold, gloomy evening, flying from Whitehorse to Fort Nelson, we also saw — as they caught the last, gun-metal gleam of a stormy day — the waters of Lake Atlin and other tributaries of the Yukon that would be diverted through huge tunnels into the Taku River and so out to the Pacific instead of into the Bering Sea if the plans outlined to us at our hearings in Victoria are implemented.¹⁵ The ultimate installed capacity of all the power-houses involved in the project would be more than five million kilowatts; and this energy too is omitted from the calculations of Canada's hydro-electric potential. In our opinion, a reasonably realistic schedule of the large hydro-electric capabilities remaining to be developed in Canada is shown in Table 7.1.

From that table it is very noticeable what a high proportion of all the undeveloped hydro-electric power in Canada is situated in British Columbia. Some of it, however, cannot be developed so long as the interests of the fisheries are held to be of over-riding importance and so long as it is so costly to provide means which would enable the salmon

to surmount the high power-dams that would be necessary and so reach their spawning-beds upstream and also allow the fingerlings to find their way down to the ocean. International agreements have also to be reached

Table 7.1

LARGE HYDRO POWER CAPABILITIES^a

(remaining to be developed in Canada as of December 31, 1955)

	Millions of installed kilowatts
Newfoundland and Labrador	
On the Island of Newfoundland	0.2
Hamilton River	4.2
New Brunswick	0.5
Quebec	
Lachine	0.9
Beauharnois	0.7
Ottawa	0.9
St-Maurice	0.6
Saguenay	1.0
North Shore, Gulf of St. Lawrence	4.0 (min.)
Rivers flowing into James, Hudson's and Ungava Bays	6.8
Ontario	
International Rapids	0.9
Northeastern Ontario ^b	0.2
Manitoba	
Nelson, Churchill and Saskatchewan	3.9
Alberta	
Peace, Saskatchewan, Bow, etc.	1.0
British Columbia ^c	
Columbia and tributaries ^d	3.5 ^d
Fraser and tributaries ^e	5.7
Peace	3.0
Nass, Stikine, Liard ^f	6.0
Other coast rivers and possible diversions	4.0
Possible downstream benefits from U.S.	1.0 (min.)
Yukon — Taku project	5.2
(Total (provisional)	54.2

^a 100,000 k.w. and up.

^b Excluding the Albany and Severn River systems.

^c The British Columbia Government in its brief estimated the total hydro-power resources of that province as being in the vicinity of 18 million k.w. as of December 31, 1955.

^d See General A. G. L. McNaughton, "Problems of Development of International Rivers on the Pacific Watershed of Canada and the United States", a paper presented at the World Power Conference, Vienna, 1956.

^e Assuming no diversion of the Columbia into the Fraser River system. Were this to be done, it would add some 4.5 million k.w. to Canadian capacity.

^f See George J. Smith, "Major Undeveloped Water Powers of Northern British Columbia", a paper presented at the eighth British Columbia Natural Resources Conference, February, 1955.

SOURCE: Adapted from John Davis, *Canadian Energy Prospects, 1957*, a study for the Commission, Chap. 9, Table 14, p. 225.

in many cases for the allocation of the benefits that would result from the construction of storage reservoirs and from the more regular flows they would make possible. If all these difficulties are overcome, as we expect they will be, Canada's installed hydro-electric capacity in 1980 could be more than four times as great as it is today. Even so, the ratio of hydro power to thermal power would have fallen from seven out of every eight kilowatts of installed capacity to two out of every three kilowatts. Nevertheless, the importance of hydro-electric power over the next two or three decades and the cost of developing it will both be so great as to necessitate careful attention to the twin problems of where it is to be marketed and how it is to be financed.

In some parts of the country, the efficient development of a large new project may require that it be designed to produce much more power than can be used immediately in the area of economic power transmission, although the general growth of the area will require all the output over a period of years. Under these circumstances one possibility is to try, by low rates, to induce one of the relatively few industries that use very large amounts of power and for which power costs are therefore a very important factor, to locate in the area. The difficulty in this case, in settled or rapidly growing regions, is that such industries typically add relatively little to the diversified economic strength or to the employment opportunities of the region and permanently appropriate a large amount of power which a growing area will need for its own general expansion. In these circumstances there would seem to be merit in permitting some part of the power from such a large new project to be exported at economic rates for stated periods of years, after which it would be made available in the area for Canadian use. In this way, the interests of Canadian consumers, immediate and long-term, would be properly protected. This would mean cheaper electricity to the general body of consumers immediately and a safeguarding of future electrical supply for the diversified requirements of the region. This policy would not, of course, apply to areas remote from settled centres where the development of hydro-electricity for industries requiring very large amounts of power seems to be desirable from every point of view, or to areas far from the United States border.

We realize that in some quarters it is regarded as heresy to suggest that in some circumstances the export of firm power under long-term contracts might be sanctioned with advantage to the Canadian economy. Hydro-electric power has long been regarded in Canada as a unique resource — uniquely valuable, uniquely cheap, irreplaceable. For that reason it has long been settled policy not to permit the export of additional blocks of firm power and to reserve it to promote the growth of the Canadian economy. For the same reason it has long been held that, once exported, power could not be repatriated. So long ago as 1910, the

Conservation Commission over which Sir Clifford Sifton presided, declared that . . . "should power be exported to the United States, the vested interests it would create there would prevent its subsequent withdrawal to meet the future needs of Canadian industry."¹⁶ Sir Henry Drayton, who during the First World War had been Power Commissioner under the Borden Government, later said bluntly, "Power exported is power lost".¹⁷ Mr. Meighen in 1925 gave it as his view that, "Power is not something that is in the world market, that another country can substitute for if the first country withdraws".¹⁸ A few years later, Mr. MacKenzie King stated, "This government has laid down the policy that the export of hydro-electric power shall be prohibited so that these great reserves of energy may be utilized in building up the Dominion".¹⁹ We are aware of past policies and of the reasons for them. When they were adopted, there was a wide difference between the cost of hydro-electric power and of power generated in thermal stations; the blocks of power exported were a relatively large part of the electricity supplied to the importing area; and there was nothing in the export contracts specifically providing for recapture. But circumstances change and policies should be flexible enough to change with them. Hydro-electric power is no longer a unique resource. Certainly it is no more so than natural gas, which is being exported from Canada under contracts of 20 years duration. Electric power is undoubtedly essential for modern industrial growth. But it can now be generated in many different ways; and the difference between the cost of generating it hydraulically and by thermal means, whether of the conventional or nuclear variety, has been decreasing and may be confidently expected to go on decreasing over the next few decades. Furthermore, the amount of energy that might be exported in proportion to the total consumption of the importing area would be fractional now compared with the comparable proportion in earlier periods; and the problem of recapturing exported hydro is consequently much simpler now. There is therefore nothing naive in believing that arrangements could be made whereby hydro-electric power would be exported to the United States for a stated number of years to be replaced, when the time came under the agreement for its repatriation, by power generated from conventional fuels or by nuclear fission. Such arrangements are perfectly feasible in our opinion and might well be more in the public interest than any alternative method of developing some of the very large blocks of hydro-electric power that still remain to be harnessed in this country.^a

A Comprehensive View of Our Energy Requirements and Resources

Issues of this kind, in our opinion, should be examined within a context broad enough to include all forms of energy and all the energy industries. In this chapter, we have tried to suggest that, although there are a number of separate energy industries, the interrelations between them are close and complex. Each of the various energy resources has

its own peculiar advantages which make it better suited than others for some purposes. Wood needs no processing before it can be burned as a fuel and is found almost everywhere, except on the prairies, so that it will still be used for heating in some outlying districts, although Canada's total consumption of fuelwood will continue to decline. Coal has both a high heat content and valuable metallurgical properties, and there are large reserves of it. It will continue to be essential in steel-making and after the passage of time may begin to recapture some of the volume markets that it is now in the process of losing. Petroleum products provide the most practical form of power for cars and trucks, and highway traffic will continue to depend on it almost exclusively. Natural gas is a particularly clean and convenient fuel and its special properties will always ensure for it many premium markets. Water-power can be harnessed with a very high degree of thermal efficiency and electricity can be produced from it without exhausting any natural resources. Electricity itself, however produced, is the most amenable form of power in industry and is now almost indispensable for domestic comfort as well. But there is also a wide area of competition between the various energy resources. For many purposes, one form of energy can be substituted for another. Wood, coal, oil, gas and even electricity can all be used for space-heating. There are many possible ways of generating electric power. Moreover, it is now technically feasible and may, in succeeding decades, be economic to synthesize oil or gas from coal, or gas from oil, and so extend the practical limits within which one form of energy can be converted into another.

For the first time in Canada, the interrelations between the various energy industries have been treated comprehensively in the study that has been prepared for us on *Canadian Energy Prospects*. As a result of that study, it is possible to put forward some estimates of the rate at which Canada's energy requirements will grow over the next two or three decades, of the way the pattern of end-use may change, and of shifts in the relative importance of the various energy resources in supplying total Canadian requirements.

Since quantities of all forms of energy can be reduced to a common measure by being expressed in terms of the heat they can generate, it is readily possible to add and compare them. Expressed in terms of tons of coal equivalent, it seems probable that the total quantity of energy required in Canada over the next quarter-century will increase at an annual rate of some 4¼ per cent. That estimate has been chosen after considering the results produced by a number of different methods. The growth experienced recently in energy requirements has been projected. Forward estimates have also been prepared based on the anticipated growth in the Gross National Product and in the labour force. The estimated requirements of the various main consumption sectors and of the various regions have

been totalled, as have estimates of domestic demand for the various energy sources. After selecting a rate of increase of $4\frac{1}{4}$ per cent per annum from among the results yielded by these different methods and after reconsidering the component estimates in order to reconcile them with that projected rate of increase and with one another, we have concluded that the changing pattern of energy use over the next quarter century might be along the lines set out in Table 7.2.

Table 7.2

THE PATTERN OF ENERGY USE IN CANADA

(percentage of total energy consumed, measured in terms of tons of coal equivalent)

Consumption sector	1926	1953	1980 (estimated)
Energy industries.....	7	9	14
Manufacturing and mining.....	18	23	29
Residential and commercial.....	37	30	21
Transportation.....	29	29	26
Non-fuel uses.....	3	5	8
Other (waste and unaccounted for).....	6	4	2
Total.....	100	100	100

SOURCE: John Davis, *Canadian Energy Prospects*, 1957, a study for the Commission, Summary, p. 2.

As will be seen from the table, it is anticipated that manufacturing, mining and the energy industries themselves will use a higher percentage of the total than at present, with residential and commercial demands being correspondingly reduced.

The changing pattern of supply to meet Canadian requirements is suggested in Table 7.3.

Table 7.3

THE PATTERN OF ENERGY SUPPLY TO MEET CANADIAN REQUIREMENTS

(each source as a percentage of total energy consumed, measured in terms of tons of coal equivalent)

Energy source	1926	1953	1980 (estimated)
Coal (including coal for electrical generation).....	69	39	16
Petroleum.....	10	42	45
Natural gas ^a	2	4	25
Wood.....	16	7	1
Water power ^b	3	8	11
Nuclear energy ^b	—	—	2
Total.....	100	100	100

a Including natural gas liquids.

b Measured in terms of its contributions as electricity.

SOURCE: John Davis, *Canadian Energy Prospects*, 1957, a study for the Commission, Summary, p. 3.

The salient conclusion that emerges from the above table is that by 1980 between two-thirds and three-quarters of Canada's greatly increased total requirements may be supplied by petroleum and natural gas. It should be noted, however, that the percentage distribution shown above is based on the consumption of energy in its primary or relatively raw form before the deduction of losses due to the inefficiency inherent in most of the methods by which energy is produced, transported and consumed. Since hydro-electric power can be put to work much more efficiently than liquid fuels or coal, its effective contribution towards meeting Canada's total energy requirements today would seem to be of the order of 20 per cent rather than 8 per cent, as is shown in the table. In 1980, the corresponding percentage might be more like 25 per cent. Nuclear power is also a highly efficient source of energy, and by 1980 its contribution might be about 4 per cent instead of 2 per cent, as is shown in the table.

We are aware that these estimates of energy use and energy supply will prove inaccurate. But, in our opinion, they are a valuable part of the total context in which individual energy issues should be considered. It is particularly important that such a context be developed at a time when the questions of the development of power resources and of the downstream benefits on rivers which cross the Canadian-United States border are under discussion between the governments of the two countries. Undoubtedly in these negotiations Canada's long-term interests in hydro-electric power will be safeguarded. We assume that in connection with these inter-governmental negotiations, the appropriate Canadian authorities are considering our long-term interests in the whole field of energy. These include not only the question of exporting electricity for periods long enough to permit the financing of new installations but also our interests in export markets for oil, both crude and refined products, and for gas and its by-products.

In order that a sound and comprehensive policy may be worked out with regard to development, exports, imports and consumption of all forms of energy in Canada, we propose that a national energy authority be established which would be responsible for:

- (a) advising the Federal Government and, upon request, any provincial government on all matters connected with the long-term requirements for energy in its various forms and in different parts of Canada; methods of promoting the best uses of energy sources from a long-term point of view; export policy, including such questions as the further refining of oil and gas in Canada and the disposal of by-products; coal subsidies, etc.
- (b) approving, or recommending for approval, all contracts or proposals respecting the export of oil, gas and electric power by pipeline or transmission wire, including, where necessary or desirable, the holding of public hearings in connection therewith.

If this proposal is accepted, the organization of the Dominion Coal Board should be merged with that of the proposed national energy authority. It is perhaps unnecessary to add that the proposed new body would not interfere with the rights of the provinces respecting control over natural resources.

Energy and the Changing Structure of the Canadian Economy

The change from wood to coal as the principal industrial fuel was an intrinsic part of the Industrial Revolution and served to drive it forward; and subsequent shifts in the supply of energy have significantly modified the structure of every industrialized country where they have occurred. It is perhaps worth while, therefore, to add a few speculative comments on the general nature of the changes we foresee in the structure of the Canadian economy resulting from the changes in the availability and cost of energy that have been outlined in this chapter.

As has been often remarked, the Canadian economy has been given a particular twist in previous decades by the relative inaccessibility and scarcity of its fuel resources and by its relative abundance of hydro-electric power, with the result that there has been a much higher concentration of the electro-process industries in our economy than there has been in the United States or many other countries.²⁰ Production of those chemicals which are manufactured essentially by combining air and electricity has gravitated naturally to the Niagara Peninsula and other areas where hydro-electric power has been plentiful. We have also been able to add a higher value to some of our natural resources by using hydro-electric power to turn our pulpwood into pulp and paper and to smelt and refine many of our minerals. In the case of aluminum, even though the raw material is not available in Canada in commercial quantities, the presence of cheap power near tidewater, together with access to large international markets, has made it profitable to locate very large aluminum plants at various points in Canada. The advantage we have had from cheap power, however, is now declining as energy costs throughout the world, including the cost of power, are tending to level out.

It seems likely that our advantage in this regard will last long enough to justify the development, even in remote areas, of large new water-power resources and to provide the basis for a large increase in Canada's capacity to produce aluminum and probably other light metals, including magnesium and titanium. It should also provide the basis for a few new smelters and refineries for the production of non-ferrous metals, and also perhaps of uranium 235. But cheap hydro-electric power is available in other countries, particularly in Africa. And as their economic development progresses, it may become attractive to develop some of these sites for the production of aluminum, or other of the light metals, or U-235. Indeed, that is already happening. Towards the end of the period that

we are considering, when nuclear energy should be available at much lower cost than it is today, and when all of Canada's large water-power resources will have been harnessed, the edge we have had because of cheap power will have entirely disappeared. Even before that, as has been suggested in the study made for us on *The Outlook for the Canadian Forest Industries*, the availability of nuclear power will be operating to narrow the advantage in the manufacture of pulp and paper that we have enjoyed because of our water-power resources.²¹ The same may also be true of the smelting and refining of base metals.

Fortunately, there is much to be set down on the other side of the ledger as well. While we are beginning to lose the advantage given us by cheap power, the handicap imposed on many Canadian industries by fuel costs higher than those in the United States is being reduced in many parts of the country as average energy costs on both sides of the border begin to come together. Close to the oil and gas fields in Western Canada, energy costs are now low enough to provide an attraction to new industries. But these low costs do not reach out very far from the fields and, in our opinion, are unlikely to, so long as changes are not made in the present methods of setting prices at the border. Even if this were done in ways less prejudicial to Canadian interests, we doubt, however, whether the special character being given to the economy by the proximity of many parts of Western Canada to cheap oil and gas will ever equal in relative importance the specialized twist given our economic development by cheap hydro-electric power. In terms of energy, our situation is beginning to blend more and more into that found across the border. Only at the other end of the country, in some parts of the Atlantic Provinces, does there seem to be little present hope of energy costs approaching the continental average. It is for this reason, as well as because of the more general considerations outlined in a later chapter, that we think special assistance from the Federal Government to help some of the Atlantic Provinces obtain assured energy resources at lower cost is well justified.

There will continue to be special energy problems in the Atlantic Provinces. In the West, some special new industries, including notably the petro-chemical industries, will cluster about the oil and gas fields. The electro-process industries will continue to expand and to have a relatively larger place in the Canadian than in the United States economy. But by and large what we foresee is a less specialized Canadian economy as a result of developments in our energy resources and in the energy resources available elsewhere throughout the world. Energy costs are coming together and energy is being diffused more widely, almost as it were, in accordance with the Second Law of Thermo-dynamics. To pluck new economic advantages from this new situation will require initiative and brains and technical skill of a high order.

AGRICULTURE

TO SPEAK OF Canadian agriculture is to generalize about an industry in which there are some 600,000 productive units varying widely in acreage, in scale of production, in specialization, in receipts, and in net income. A few scattered facts about Canadian farms gleaned from the evidence presented to us and from the study prepared at our request on the *Progress and Prospects of Canadian Agriculture* may be sufficient to make clear the variety that underlies the aggregate statistics.* In Newfoundland, according to the 1951 census, farms on the average were of only slightly more than 23 acres. In Alberta, on the other hand, the average size of farm was 527 acres, and in Saskatchewan 550 acres. Along the south and southeast coast of Nova Scotia, in much of Cape Breton Island, in the central and northeastern sections of New Brunswick, and in the Gaspé, as well as in Newfoundland, many of the farms are hardly above the subsistence level; and this is also true of northern Quebec and northern Ontario. On the other hand, we were told that in Saskatchewan perhaps as many as 20 farmers own private airplanes;¹ and of course highly prosperous farmers are to be found in other provinces as well. A farmer cultivating four or five sections of good wheat land in the Regina Plains clearly has little in common with a farmer in New Brunswick whose cash receipts from farming may amount to no more than \$500 a year and who ekes out a living by working in the bush or on the roads. He may even have little community of outlook with another wheat farmer in the same province tilling a quarter-section of 160 acres. Nor is there necessarily much in common between a dairy farmer with a large farm on the outskirts of Vancouver and a pensioner working a small orchard of perhaps ten acres in the Okanagan Valley, or between a Nova Scotia farmer specializing in egg production with as many as 200,000 poultry in large hen-houses equipped with mechanical feeders and another farmer in the same province who keeps a small brood of chickens about the house, pastures two or three cows on a stony hillside and earns a little cash income by hiring himself out to do odd jobs. Yet all of these are classed as farmers for

* For the 1951 census, a farm was defined as a holding on which agricultural operations were carried out and which was (1) three acres or more in size, or (2) from one to three acres in size and with the agricultural production in 1950 valued at \$250 or more. A similar definition was used for the 1956 census, although for the most part the results of the farm census made in that year did not become available in time to influence our study of Canadian agriculture.

census purposes. When it is stated — as is true — that productivity in agriculture is lower than in any other sector of the Canadian economy, it must be remembered that output per man-hour on many Canadian farms is probably at least as high as in many manufacturing concerns. When attention is drawn — as it should be — to low average incomes in agriculture, it must be remembered that some Canadian farmers make with fair regularity an income that many of their fellow citizens would envy.

The one thing that Canadian farmers increasingly have in common is an interest in farm prices and farm incomes and a tendency to regard their occupation as a business. Farming in Canada has been moving more and more to a cash basis and becoming more and more commercial. One aspect of this trend is that income in kind, as a percentage of gross farm receipts, has declined sharply over the last 20 years as farmers and their wives have found it more convenient and economical to sell a higher proportion of their output and to buy more of the food and fuel they need in the same way as city-dwellers do. Even in the Annapolis Valley, for example, where apple growing is still one of the most important agricultural enterprises, we were told that some farm households buy cases of tinned applesauce instead of keeping barrels of apples in the cellar.² At the same time a higher proportion of farm inputs have been coming from other sectors of the economy and must be paid for in cash. The rapid mechanization of Canadian agriculture since the end of the War, which was mentioned in Chapter 5, has involved larger cash outlays for gasoline, oil and grease and repairs, while the application of other technological advances to farming has involved heavier purchases of commercial feeds and seeds and fertilizer. Another way in which farming has come to resemble other businesses more closely is in its capital structure. In every province farming has become more highly capitalized; and the capital is increasingly concentrated in machinery and implements and livestock rather than in land and buildings. Finally, the more commercial character of agriculture is noticeable in the fact that since 1951 the number of unpaid family workers on Canadian farms has declined rapidly while the number of hired workers has changed very little.³

This trend toward a more commercial agriculture is proceeding at a different pace in different parts of the country. But it is visible everywhere. The representative of one of the farm organizations in Saskatchewan, after describing for us how young farmers in the area where he lived had come together to study the application of modern accounting practices to agriculture, remarked that farmers of his generation were now inclined to look on themselves as "straight businessmen".⁴ In the brief we received from L'Union Catholique des Cultivateurs, the development of farming in the Province of Quebec was described as an evolution away from agriculture as a way of life toward agriculture as an enterprise.⁵ In most

parts of the country it is still both, it is still a way of life as well as a business. But both in reality and in the attitude of farmers toward their own occupation, it is becoming increasingly commercial.

Agriculture's Special Characteristics

But if agriculture is an industry, a business, it is an industry that differs in some important particulars from all others. Perhaps the most fundamental difference is that there is a relatively inelastic demand for its output. This can be called a fundamental difference because it arises from something immutable in human nature, from the fact that the lusts of the eye and of the other senses are more insatiable than physical appetite. There may be little limit to the amount of chrome a man may want on his automobile or to the frequency with which he can be persuaded to change it. There is a limit to the amount of food he can eat. He can hardly be stuffed with grain like a Strasbourg goose; and even if his tastes, as he grows wealthier, run to richer and more varied fare, the returns accrue more to the processor and the restaurant keeper than to the primary producer. So, after a certain level has been reached, the demand for foodstuffs rises much less rapidly than rising incomes, while the demand for many manufactured products follows the income curve upwards or moves ahead of it. Put in economic terms, that is to say that the income elasticity of demand for farm products as a group is relatively low. Closely related is the fact that the price elasticity of demand for many farm products is likewise relatively low. A drop of 10 per cent in the price of potatoes will result in little increase in consumption, while a similar drop in the price of television sets may clear out all the surplus stocks that dealers have on hand.

Of equal importance are the inelasticities and immobilities on the supply side of agriculture. The temperament of the agricultural industry, increasingly commercial though it has become, is still necessarily attuned to the slow wheeling of the seasons and the slow fulfilment of biological processes. After a farmer has put in a crop there is little point in closing down the factory. After a sow has farrowed, it would be silly to slaughter the innocents even if there has been a sharp fall in the price of hogs. There is little to be done but wait until the pigs are ready to be sent to market and then take whatever price they will fetch. Nor do farmers ordinarily cut back their intended production because of a clouding of business expectations. Few things in agriculture are more remarkable than the constancy of farm inputs in bad times as well as in good and the constancy of total agricultural output, provided nature is reasonably kind. Similarly, farmers themselves are relatively steadfast and immobile. With conditions of full employment, it is easier for farm workers to leave agriculture; and this process is also facilitated when agricultural incomes have been high, so that farm owners have enough money to enable them to start on a

different life or to retire and their neighbours have enough money to buy them out. But farming, as we have said, remains a way of life as well as a business. All that that implies make it harder for farmers to shift to other occupations, although in good times their sons may feel much more footloose and hired hands then may come and go so quickly as to be of little use.

The relatively inelastic demand for foodstuffs and the relatively inelastic response of agricultural production to changing prices, when coupled with the fact that there are a large number of producing units in agriculture, explain the wide fluctuations in farm prices and farm incomes. Farming is open to the hazards of the weather and of plant and animal diseases so that inevitably there are sharp unplanned variations in the output and supply of particular commodities. In the face of relatively inelastic demand, the result is a wider fluctuation in the price of foodstuffs than in other wholesale prices.⁶ Whereas the price of nickel or newsprint may remain unchanged for a year or more, the price of many agricultural commodities fluctuates from day to day. An analysis that has been made for us of the variation in wholesale prices of farm and non-farm products suggests that the spread from year to year in the price of Canadian farm products over the 20 years from 1936 to 1955 has been almost twice as great as the average annual variation in other wholesale prices.⁷ Moreover, swings in farm prices are also accentuated by cyclical movements peculiar to agriculture. Farm incomes are comparatively unaffected by fluctuations of the business cycle so long as the downswing does not go so far as to produce a drop in total effective demand for foodstuffs. But agriculture has epicycles of its own that amplify variations in farm prices. When the price of grain is low relative to the price of livestock, many farmers see a prospectively promising market for cattle or hogs and, acting independently and without knowledge of the plans of others, take steps to increase their production. Then the price goes down and many of them cut back their livestock inventories. But these cycles of production run over three to six years or more, the length of the cycle depending on the type of livestock, with the result that prices fall further at the peak of the cycle than they would if agriculture were a business more immediately responsive to price changes.

Again because of the relatively inelastic nature of demand, farm prices have a more dominant influence on aggregate farm income than is true in other industries. Individual farmers, of course, who have a good crop when crops generally are poor and prices are high, will do very well both because of the volume of their sales and the prices they can command. But aggregate agricultural income would seem to be chiefly affected by the level of agricultural prices, in the absence of catastrophic and persistent crop failures or abnormal changes in total demand. The depression of the '30's cut so deeply into incomes that there was a sharp drop in effective demand

for foodstuffs, so that consumption as well as prices was reduced. Conversely, the heavy demand for North American foodstuffs during many of the War years and in the five or six years after it, when agricultural production in other parts of the world had not yet fully recovered, meant that Canadian farmers were profiting both from higher prices and from a heavy volume of sales.

But such a favourable situation is uncommon. There is persuasive evidence that for many decades in the industrialized countries of North America and Western Europe, as well as in less advanced areas, agricultural incomes have lagged behind others. The reasons are not entirely clear. It is somewhat obscure, for example, why even a very rapid introduction of technological improvements in agriculture does not seem to improve the relative position of agricultural producers, although, of course, it helps to create higher real incomes for the whole community, farmers included. On the other hand, there is wide agreement that the inelastic nature of the demand for farm products and the inelasticities and the rigidities on the supply side of agriculture are both important elements of an adequate explanation. If demand were not comparatively static, there would not be so strong a tendency for technological improvements, as they spread through agriculture, to produce an over-supply of farm products. If farmers were less rooted to the land, technological change, together with the greater efficiency and competitive pressure that it brings with it, would lead to an even greater exodus from farming than in fact occurs, and in this way would counter the persistent tendency toward a relative decline in average farm incomes.⁸

External Demand

In trying to explain the characteristics of agriculture that set it apart from other industries, we have spoken as though domestic demand were all that needed to be considered. That is of course an over-simplification. If external demand is expanding and effective, it can be sufficient to offset the tendency toward over-production that seems almost inseparable from agriculture in an industrial economy. The attitudes of many Canadian farmers and many members of the public toward agricultural production and agricultural policy have been deeply coloured by the fact that through long periods in the past agricultural production in this country has been chiefly directed toward satisfying growing external demand. The question we must ask is whether such conditions are likely to be found over the next twenty-five years.

Wheat will continue to bulk so large in our total agricultural exports that it deserves separate treatment in any discussion of prospective external markets. In attempting to assess the amount of wheat that Canada may expect to sell over the next two or three decades, we have first estimated the total volume of wheat that is likely to be traded internationally and

have then made a judgment of what proportion of this volume Canada may expect to supply.

The record of the international trade in wheat since the turn of the century is shown in Table 8.1, together with some indications of the sources from which it has come. It will be seen that with growing population, growing demand and comparatively mild import restrictions, world trade in wheat grew steadily for the first three decades after the turn of the century until markets collapsed in the '30's. The latter years of the War brought a great expansion in wheat exports and this trend continued until 1951 while wheat production in Europe and rice production in the Far East were being restored. Although some downward drift was discernible in following years, the amount of wheat currently entering world trade is still substantially above the amount that was traded in the years immediately before the War.

Any judgment of the probable size of world trade over the next two or three decades must take into account anticipated population growth in many parts of the world; the prevalence of government programmes to promote a higher level of self-sufficiency in foodstuffs, and particularly in cereals; and finally, the fact that, after a certain standard of living has been reached, the demand for wheat is less elastic than that for almost any other food. In Chapter 2 we gave some indication of the population growth that may be expected in various parts of the world and in Chapter 4 we described the scope of agricultural protectionism. But the inelastic demand for wheat in highly developed countries also needs to be stressed. In North America, for example, per capita consumption of wheat has been declining since the turn of the century, and the demand for it now contracts with rising incomes more than for any other foodstuff with the exception of potatoes, dry peas and beans, and salt sides and lard.

This characteristic of the demand for wheat in highly developed countries must be borne in mind in attempting to estimate the probable volume of world trade. In many of the countries of Western Europe, for example, including the United Kingdom, France, Belgium, Switzerland, Spain and Ireland, per capita wheat consumption has been declining. Moreover, in most of these countries population growth is likely to be slow. In a few other countries of Western Europe, including Western Germany and the Scandinavian countries, although per capita consumption of all cereals has been declining, per capita consumption of wheat has been increasing because of a shift away from rye as the principal bread grain.⁹ There have also been per capita increases in wheat consumption in Italy, Greece and Yugoslavia, where the standard of living on the average is still considerably lower than elsewhere in Western Europe. As a result, however, of declining per capita consumption in many of the countries of Western Europe and the expectation of only moderate population growth in the area as a whole, it should not be expected that any substantial

Table 8.1

WHEAT AND WHEAT FLOUR—WORLD EXPORTS BY PRINCIPAL COUNTRIES
(averages: 1900-54; annual 1945-55)

	Four major exporters						Eastern exports ^c	Other	Total exports mil. bu.
	Argentina	Australia	Canada ^a	U.S. ^b	Sub-total				
	%	%	%	%	mil. bu.	%			
1900-09d.....	14.1	4.4	6.4	26.0	303	50.9	38.7	10.4	596
1910-19d.....	13.4	8.3	19.2	27.5	455	68.4	19.6	12.0	665
1920-29d.....	18.4	10.5	31.8	26.4	732	87.1	4.8	8.1	840
1930-39d.....	18.3	16.1	28.3	10.6	520	73.3	12.5	14.2	710
1945-54.....	8.4	9.9	29.9	40.4	818	88.6	—	11.4 ^e	923
1945.....	8.0	4.2	42.2	45.6	856	100.0	—	—	856
1946.....	7.7	6.0	29.9	50.9	736	94.5	—	5.5 ^e	780
1947.....	10.9	10.3	22.4	52.0	893	95.6	—	4.4 ^e	934
1948.....	6.2	12.3	22.1	50.9	909	91.5	—	8.5 ^e	991
1949.....	10.7	13.8	28.7	36.2	737	89.4	—	10.6 ^e	825
1950.....	11.0	13.5	23.5	39.1	817	87.1	—	12.9 ^e	937
1951.....	2.8	9.3	32.5	44.6	951	89.2	—	10.8 ^e	1,066
1952.....	2.9	10.0	39.7	32.2	838	84.8	—	15.2 ^e	988
1953.....	12.5	8.1	32.7	24.7	686	78.0	—	22.0 ^e	879
1954.....	13.6	9.6	26.1	28.2	752	77.5	—	22.5 ^e	970
1955.....	11.3	10.3	28.4	34.0	854	84.0	—	16.0 ^e	1,016

^a Includes exports of "wheat unfit for human consumption" from Canada to U.S. as follows: 1950-51, 12 mil. bu.; 1951-52, 30 mil. bu.; 1952-53, 20 mil. bu.; 1953-54, 4 mil. bu.; 1954-55, 3 mil. bu.; and 1955-56, 9 mil. bu. Also includes wheat exported to the U.S., a part of which was milled in bond and later exported by the U.S.

^b Excludes the wheat equivalent of exports of flour milled in bond. Includes principal products other than flour.

^c Includes U.S.S.R.

^d Calendar years.

^e Eastern Europe combined with "other".

Source: *The Wheat Situation*, United States Department of Agriculture (Agricultural Marketing Service), Oct. 31, 1955, Table 15, and Oct. 31, 1956, Table 17.

increase in the volume of world trade will come from this quarter. Moreover, the governments of all these countries have been active in promoting domestic production. In the Soviet Union and the countries of Eastern Europe within its orbit, agricultural production seems to be placed at a continuing disadvantage in comparison with industrial production and the chronic difficulties to which it is subject may necessitate substantial imports of wheat from time to time which will tend to increase the volume of world trade. But these requirements can be arbitrarily curtailed by the totalitarian controls exercised over consumption standards, and foreign purchases can be subordinated to political objectives, so that it would be unwise to count on any significant increase in the volume of world trade from this source.

In South America population is increasing rapidly and per capita consumption of wheat may also be expected to rise in most countries. On the other hand, the opportunities for expanding wheat production are very great and many South American countries have already made remarkable strides toward becoming self-sufficient. Through new irrigation projects and the use of improved seeds and fertilizers, Mexico, for example, in recent years has moved to a position where in most years it can dispense with imports. Since the end of the War Brazil has been the fourth largest importer of wheat in the world, ranking only after the United Kingdom, Western Germany and Japan. It too, however, has increased its wheat production prodigiously so that its output is now almost six times as large as before the War.¹⁰ In general, it seems unlikely that the importing countries of South America will be responsible for much, if any, increase in world trade.

Such increase as is to be expected will probably come almost exclusively from countries in Asia and Africa such as Egypt, India, Pakistan, and Japan where poverty is still deep and widespread and where there is abundant room for an increase in per capita consumption of all cereals and of wheat in particular. How world trade will be affected by their requirements will depend on how fast their populations increase; on how successful they are in promoting economic development and raising standards of living; on how self-sufficient they can become in the production of cereals; on changes in consumption habits, including in some countries a shift from rice to wheat; and on how acute are the exchange problems they have to deal with. In most of these countries substantial population growth is to be expected. It may also be expected that their efforts to encourage economic development will bear fruit. But they are all endeavouring to increase their domestic production of food grains and already some of them have had considerable success. Cereal production in India, for example, during the years of the first Five-Year Plan increased at a faster rate than population and an even larger increase is projected over the period of the second Five-Year Plan.¹¹ Japan, on the other hand, many of whose people have

developed a taste for wheat rather than rice as a result of the post-war Occupation and continuing United States assistance, has a dense population and relatively little arable land. Although in Hokkaido there is considerable acreage that might be brought under cultivation, it is inconceivable that Japan will ever be able to produce all the food it needs.¹² More generally, it may be doubted whether agricultural production in these countries, taken together, can keep pace with population growth and provide for at least the modest improvement in nutritional standards that is essential. Instead, it would seem that the growth of population in the countries of Africa and of Asia and the Far East is at present exerting some upward pressure on the volume of world trade in wheat and will continue to do so over the next two or three decades, although this pressure will be checked by exchange difficulties and by government policies designed to stimulate domestic production.

As we see it, world trade in wheat over the next few years may drift down from a present artificially high level at which it is being maintained by United States disposals in excess of normal commercial marketings. Over the long run, however, the level will be pushed slowly upward by population growth and by rising effective demand in many of the countries of Asia and Africa, so that over most of the next two or three decades it may hover around a total of 950 million bushels.

Of a total world trade in wheat of that order of magnitude what proportion might Canada expect to supply? The advantages and disadvantages of Canadian producers can be stated very simply. Canada has hard wheat to export; but it has to be paid for in hard currency. The United States at the present time is exporting wheat for soft currency or no currency at all, and at cut-rate prices that would not be possible if the United States Treasury were not subsidizing American wheat producers so handsomely. So long as that policy continues, the Canadian Wheat Board will have difficulty in securing a fair share of the world market for wheat produced in Canada. We must hope, however, that the efforts now being made to dissipate United States stocks and to prevent the accumulation of very large surpluses in the future by taking wheat acreage out of production will be successful. To the extent that it is, our problems will be eased. The Argentine has also traditionally been a large exporter of wheat and is now coming back strongly into the market. It has hard wheat of high quality, which can be purchased for soft currency, and in the years ahead may offer vigorous competition. The next most important competitor in the world market is Australia and it, too, enjoys the advantage of selling wheat for soft currency. This is attractive to many Asian countries, which, moreover, have not the same preference for hard wheat as is shown by millers in the United Kingdom and the countries of Western Europe. These four countries — the United States, Canada, the Argentine and Australia — are the most important exporters and normally supply about 80 per cent

of all the wheat that is traded internationally. In addition, both France and Turkey in recent years have exported large quantities. But they are both high-cost producers and it may be doubted whether either of them can afford permanently to subsidize wheat exports so heavily as they have been doing in the recent past. Since 1920 Canada has accounted on the average for 30 per cent of the world's trade in wheat. We are inclined to think that when the present exceptional surpluses throughout the world have been reduced, and when the United States stops dumping wheat at cut-rate prices throughout the world, we should be able to obtain on the average about that share of the total market. That would mean that, over the short run while there is stiff competition in disposing of surplus stocks, we might not be able to export more than 220 million or 250 million bushels annually, but that over most of the next two or three decades our average annual exports should run between 255 million and 300 million bushels. At that rate, total requirements of Canadian wheat from both external and domestic sources might amount to between 370 million and 415 million bushels in the immediate period of heavy surpluses and to between 435 million and 480 million bushels over the longer run. Others may quarrel with those estimates, which we need hardly say are put forward very tentatively. But we doubt whether there will be much disagreement with the broad conclusion that, while Canada should be able to maintain, it will have difficulty in increasing, its traditional share of a world wheat market that will be expanding only very gradually over the next twenty-five years.

Nor, in our opinion, is much increase in Canadian exports of other agricultural commodities to be expected. Import restrictions in other countries will hold them down, as well as the pressure of Canadian domestic demand, and the rising cost of some Canadian production. In the past many Canadian farmers produced large quantities of a number of commodities, including cheese, bacon and apples, for export to the United Kingdom and other overseas markets. Those markets have now almost vanished and will probably never be recovered. It might perhaps be taken as a symbol both of the way Canadian farmers have bid them farewell and of the deep and intimate influence on Canadian production of changing external demand that many Nova Scotian apple-growers, by a gradual process of grafting, have been replacing varieties preferred in the United Kingdom with varieties to be sold in Canada, and, if possible, in the United States.¹⁴ Other than wheat, our principal overseas exports of agricultural commodities in recent years have been coarse grains, with substantial quantities of barley, in particular, going to the United Kingdom for feed and to Japan for food. Some of these sales have clearly been exceptional and it would be rash to believe that most of this trade will be permanent. The United States has also been taking large quantities of coarse grains, chiefly because Canadian barley is preferred by United States maltsters and Canadian oats are preferred by New England cattle breeders. The probable

volume of this trade is also unpredictable. But in our opinion total exports of coarse grains are likely to fall below the volume exported in 1955 as progress is made in overseas countries with programmes to promote self-sufficiency and as Canadian requirements increase. Overseas markets have also been of some importance for producers of tobacco, seeds, and oil cake and meal; and we would expect such sales to continue, and even increase somewhat. But for most agricultural commodities other than wheat, the United States in our judgment will be the only market of any consequence over the next twenty-five years; and even in that market we would not expect much expansion, as may perhaps be illustrated by our anticipation for livestock and livestock products. There will continue to be some border trade in livestock; some cattle will still be shipped to the United States for finishing; there will be some export of purebred breeding stock; specialty pork products will also move across the border in more than negligible volume. Some believe that this latter trade could be expanded significantly because of the preference of United States consumers for cuts from the leaner hogs that are characteristically raised in Canada. But there has been a marked shift in taste in the United States away from all pork products in favour of beef; hog production in the United States is highly efficient; and leaner type hogs are being developed; so that we doubt whether such exports will increase substantially. On balance, it is our view that total exports of Canadian agricultural commodities to the United States will not be much higher in 1980 than they were in 1955.

If that conclusion is found surprising in the light of the population growth that is expected in the United States, it should be remembered that, as it has recently been put by an authoritative group of farm leaders and agricultural economists in the United States, "the heart of the farm problem" there is "the propensity of farmers to step up output faster than domestic and foreign demands are growing".¹⁵ This is to be traced to the very wide and rapid spread of technological improvements through American farms, which has been fanned by artificially high prices and has led to increasingly larger outputs per acre and per unit of feed. In the view of the same group of experts, the "corrective forces operating today do not appear to be sufficiently strong to bring farm production into balance with demand". We have already expressed the opinion that, in time, price and other changes in United States agriculture may bring supply and demand sufficiently into balance so that agricultural surpluses will cease to be chronic. That may be overly sanguine. But it would stretch even the limits of our optimism to believe that over the next twenty-five years United States farmers will be so powerless, the inducements offered to them so slight, and the remedies applied to over-production so drastic, as to leave much room in the United States market for increased imports of Canadian foodstuffs.

It may be convenient at this point briefly to recapitulate the argument we are trying to advance and to see where it is leading before the thread

of it is lost in the details of our speculations about prospective external and domestic demand. There would seem to be in all highly industrialized countries a tendency for the spread of technological change in agriculture to produce an over-supply of farm products and for agricultural incomes, as a result, to trail behind others. This tendency can be counteracted if external demand is rising rapidly. We can see, however, little reason for expecting this to be the case over the next twenty-five years. The implication, which we shall endeavour to develop later, appears to be that government policy toward agriculture should avoid aggravating the danger of over-production that, in our opinion, may well be present over most of the period that we have to consider.

Domestic Demand

It will be domestic demand that will be providing the stimulus for agricultural expansion in Canada over the next two or three decades, and that will have the greatest influence on the changing pattern of agricultural production. We envisage both growing population and growing per capita disposable income (which may be defined with sufficient accuracy as personal income left after taxes). Population growth will mean that a proportionately larger bulk of farm products will be needed to feed the additional millions who will be living and working in Canada. Growth in disposable personal income will mean that the total demand for some farm products will increase much more rapidly than for others. By marrying estimates of population growth to estimates of per capita consumption as these will be affected by rising disposable personal income, some idea may be obtained of probable requirements for the main groups of agricultural commodities twenty-five years from now.

We have already noted that, as the level of income rises, per capita consumption of bread grains and potatoes as well as of a few other commodities declines. Concurrently, however, there is an increase in the per capita consumption of other foodstuffs. More fruit and vegetables are bought and, in particular, consumers use their higher incomes to buy more of the protective, high-protein foods, such as meat and eggs, which cost more per calorie than bread and potatoes. In a later chapter we discuss anticipated trends in disposable personal income. For present purposes it is enough to know that by 1965 we estimate that personal disposable income will have risen by approximately 18 per cent on the average and that by 1980 it will have risen by approximately 70 per cent. After applying these projections to the statistical record of changes in per capita consumption over the past 20 years and after giving some attention to the parallel changes that have occurred in the United States, we have formulated estimates, which are summarized in Table 8.2, of per capita consumption by 1965 and 1980 for the major groups of foodstuffs.

By presenting estimates for only the main groups of foodstuffs, we have perhaps seemed to sidestep many of the problems that are involved

Table 8. 2

TRENDS AND ESTIMATES OF PER CAPITA CONSUMPTION
(averages: 1935-39, 1951-55 with estimates for 1965 and 1980)

Years	Cereals	Potatoes	Other starches	Fruits	Veg- etables	Oils and fats	Dairya products	Red meats	Poultry meat	Eggs
	Pounds per capita									
1935-39	202	200	106	113	127	16	449	117	21	31
1951-55	166	145	108	169	136	29	448	140	28	35
1965	152	130	108	177	138	32	438	147	29	38
1980	128	110	105	223	145	35	418	169	33	45
	Indexes 1951-55 = 100									
1935-39	121.7	137.9	98.1	66.9	93.4	55.2	100.2	83.6	75.0	88.6
1951-55	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1965	91.6	89.7	100.0	104.7	101.5	110.3	97.8	105.0	103.6	108.6
1980	77.1	75.9	97.2	132.0	106.6	120.7	93.3	120.7	117.9	128.6

a. Includes butter.

NOTE: Consumption figures are in retail weight except for fruits and vegetables, which are in fresh equivalent, and for meats, which are dressed carcass weight.

SOURCE: Based on W. M. Drummond and W. MacKenzie, *Progress and Prospects of Canadian Agriculture, 1957*, a study for the Commission. Chap. 2, Table 12, p. 32.

and have perhaps robbed the estimates of some of their interest. A few notes of explanation may help to restore it. It will be noticed that per capita consumption of fruits has been increasing rapidly over the last 20 years and that we expect this increase to continue. Citrus fruits account for most of it, so that continuance of this trend will mean a proportionately greater increase in imports than in Canadian production. Within the category of dairy products we have included not only fluid milk, cheese, and dried milk of various kinds, but butter as well, although with almost equal logic it might have been included in the category of fats and oils. We admit to great uncertainty in estimating how the per capita consumption of butter will move in the future. When the sale of margarine was legalized in most provinces in 1948 and 1949, butter consumption fell sharply and has since continued to fall fairly steadily although it is far above the level of per capita consumption in the United States. We have assumed it to be unlikely in the short run that all legal restrictions on the use of margarine will be removed. We have also assumed that there may be some decline in the price of butter relative to the price of substitutes for it. On these assumptions, we think that although per capita consumption of butter will decline still further, the downward movement will be less precipitate than it has been since 1948. There can be little doubt, on the other hand, that oils and fats of vegetable origin will continue to be substituted for those of animal origin as technological changes result in the production of vegetable fats in more palatable forms and at lower costs. Our composite estimate of per capita consumption of dairy products also conceals uncertainty about the possibility that an instantly soluble whole milk powder may be developed. If that were to happen, the consumption of fluid milk would almost certainly drop very sharply and milk distribution would be transformed. As was pointed out to us in the Atlantic Provinces, this would be a boon in many parts of the country where fluid milk is either unavailable or available only at inordinate cost.¹⁶ Finally, we confess to some doubt about how per capita consumption of dairy products and other fats and oils will be affected by medical research into the causes of diseases of the heart and the vascular system. If it were to be shown with more certainty that a diet with a high fat content is at least in some cases a contributory cause of heart trouble, the consumption of fats and oils might be less than we anticipate.

In spite of these uncertainties, however, we think that the broad outlines of these estimates are probably reliable. They suggest that by 1965 individual Canadians will be eating about 10 per cent less potatoes and cereals than in the period from 1951 to 1955 and about 25 per cent less by 1980. By 1965 they will want, and will be able to pay for, about 5 per cent more meat, eggs and poultry per person than they consumed ten years previously; and by 1980 per capita consumption of these commodities will have risen by about 20 per cent above the level of the mid-fifties. Per capita consumption of dairy products as a group is unlikely to rise, while

the consumer will be buying larger amounts of fruits and vegetables, many of which will be imported.

If these estimates of per capita consumption are multiplied by the number of mouths that will have to be fed, the result should give the total domestic food requirements that may be anticipated over the next twenty-five years. On the assumption that net immigration runs on the average at 75,000 a year, it was forecast in Chapter 6 that the total population of Canada will rise by 1965 to 19,520,000 and by 1980 to 26,650,000. Our estimates of the total food requirements for a population of that size are presented in Table 8.3. Whatever the magnitude of error in these estimates may be, the broad implications for Canadian agriculture are clear. The domestic market for meat and meat products and for eggs will be strong throughout the period and will gain in strength as the period wears on. The weakest markets will be those for the direct consumption of cereals and potatoes. Domestic demand for dairy products may be expected to increase at approximately the same rate as population. Those farmers who are in a position to grow oil-bearing crops will find a strong market for them. There will be heavy demand for Canadian-grown fruits and vegetables, and imports of many of these commodities will also rise substantially.

The increase we anticipate in domestic demand for livestock products is so substantial that we have also thought it advisable to show these requirements converted into the form in which they would be met from the farm. Accordingly, in Table 8.4 meat requirements have been converted from dressed carcass weight to the number of animals slaughtered and the demand for dairy products has been assessed in terms of milk production.

No doubt the estimates of demand contained in Table 8.3 and Table 8.4 could be extended and refined. Add to them, though, the forecasts given earlier in this chapter of probable total demand for Canadian wheat and also assume, as we do, that there will have to be a 70 per cent increase in production of feed grains in order to meet the domestic demand that we anticipate for livestock products, and the main dimensions of the schedule of demand that we anticipate will be reasonably apparent. It will be noticed that the increase in the requirements of hogs and beef cattle that we expect by 1965 will be comparatively moderate and that most of the increase by far will take place in the last 15 years of the period. The chief reason for this is that livestock production was exceptionally high during the period from 1951 to 1955, which we have taken as the base years for our forecast of livestock requirements.

How Demand will be Met

So much for the anticipated demand. How will it be met? Will greatly increased imports be needed? Will new agricultural land be opened up or will the land at present in farms be used more intensively? How large a labour force will be required? What will be the role of technology?

Table 8. 3

TOTAL CONSUMPTION OF THE MAJOR FOOD ITEMS
(1935-39, 1951-55 with estimates for 1965 and 1980)

Years	Cereals	Potatoes	Other starches	Fruits	Veg- etables	Oils and fats	Dairy ^a products	Red meats	Poultry meat	Eggs
Millions of pounds										
1935-39	2,232	2,213	1,168	1,248	1,400	179	4,953	1,296	236	339
1951-55	2,445	2,145	1,597	2,492	2,006	428	6,621	2,065	411	518
1965	2,967	2,538	2,116	3,447	2,684	625	8,556	2,869	556	742
1980	3,411	2,931	2,796	5,930	3,864	933	11,150	4,504	879	1,199
Indexes 1951-55 = 100										
1935-39	92	103	73	50	70	42	75	63	57	65
1951-55	100	100	100	100	100	100	100	100	100	100
1965	122	119	132	138	134	146	129	140	136	143
1980	140	134	175	237	193	218	168	218	214	231

^a Includes butter.

NOTE: Data for 1935-39 and 1951-55 are averages of the annual rate of domestic disappearance for human consumption in the years indicated. Weights are expressed at retail, except in the case of fruits and vegetables, which are in fresh equivalent and meats, which are dressed carcass weight.

SOURCE: W. M. Drummond and W. Mackenzie, *Progress and Prospects of Canadian Agriculture, 1957* a study for the Commission, Chap. 2, Table 13, p. 36.

Table 8.4

REQUIREMENTS IN TERMS OF LIVESTOCK NUMBERS AND OUTPUT

(1951-55 average and projected requirements 1965 and 1980)

Years	Hogs	Cattle for beef	Veal calves	Milk cows	Hens	Milk	Eggs
	Output Number in Thousands			On Farms June 1st millions		Output whole milk billions lbs.	million of doz.
1951-55....	7,570	2,040	1,180	3.1	26.8	16.3	388
1965....	10,100	2,600	1,500	3.3	29.3	18.5	518
1980....	16,200	4,200	1,575	3.5	37.1	24.6	820
Indexes 1951-55 = 100							
1951-55....	100	100	100	100	100	100	100
1965....	133	127	127	105	109	113	133
1980....	214	206	133	112	138	151	211

SOURCE: W. M. Drummond and W. Mackenzie, *Progress and Prospects of Canadian Agriculture*, 1957, a study for the Commission, Chap. 2, Table 14, p. 37.

Some of these questions in our opinion can be answered with considerable confidence. We are reasonably certain, for example, that, apart from some obvious exceptions, imports of agricultural commodities will not increase substantially. We have already suggested that increasing quantities of citrus fruits and fruit juices will be imported, and there will also be increased imports of other commodities that either cannot be grown in Canada at all or can be grown here only at ludicrous cost. But except for commodities that require tropical or semi-tropical climates for their production, Canada has always been able to supply its own requirements of foodstuffs and to do so at prices that, given the present comparatively moderate degree of protection, have been generally competitive. We see little reason to expect any major change in this situation, although from time to time some adjustments may be necessary in the degree of protection afforded Canadian producers or in the prices they receive, if it is to be maintained.

We are also fairly sure that not much new land will be brought into cultivation to meet rising demand. There is still some virgin land in Western Canada available for settlement, although it is less than many people imagine. But, except in a few areas, it is not of the highest quality and is located in latitudes where the winters are severe and the growing seasons short. Since much of it is under forest cover, the initial costs of clearing and breaking it would be higher than were incurred in breaking the open prairies; since, typically, it is far from established markets, continuing transportation costs would also be high. In Manitoba it is estimated that, in the settled parts of the province, there is approximately

a million acres of agricultural land not yet in farms, and in all probability all of this will be brought into cultivation before 1980. But it is very doubtful whether much of the land that is available in the more northern parts of the province will be settled during the period we have to consider. Almost all of the agricultural land in Saskatchewan is now in use, with the exception of a tract on the lower Saskatchewan River near the Manitoba border which could be brought under cultivation only if large drainage and diking works were undertaken. The cost of these, however, would be so heavy that we doubt whether it would be found economical to bring this land into production during the next two or three decades. Most of the agricultural land in Western Canada that is not yet in farms is to be found in Alberta and is located in the Peace River District and in the gray wooded soil region that lies north of the very fertile black soil region. It seems not unlikely that as much as three million acres of this land will be added to the area in farms by 1980. There is also unoccupied land in British Columbia, and some of it, no doubt, will also be brought under cultivation. We would estimate that by 1980 the area of land in farms in Western Canada might well have increased by some six million acres. This increment will be offset by land being lost to agriculture in Eastern Canada. The area of land in farms has been declining in the Maritime Provinces since 1911 and in Ontario and Quebec since 1941. In part, this is to be explained by the encroachment of urban areas on land previously in farms. Far more important, however, has been the abandonment of farms either because they were too remote, or too small, or had too poor soil to return a decent living or because the lie of the land was such as to prevent the use of modern mechanical methods of cultivation. We expect that the process of farm abandonment will result in far more land going out of agriculture in Eastern Canada than will be added to it by the new settlement still to be expected in a few districts of Quebec and Ontario. The net loss in Eastern Canada between 1951 and 1980 may well be slightly over four million acres. If these estimates of new settlement in the West and farm abandonment in the East prove accurate, the total area of land in farms in Canada would increase from 1951 to 1980 by only about two million acres, or from 174 million to approximately 176 million acres.¹⁷

Instead, rising demand will be met by intensified use of land already in farms to make it yield a higher output per acre. This will be the principal response of Canadian agriculture to rising demand, we feel sure, partly because modern social attitudes have greatly increased the cost of land development and partly because modern scientific advances have greatly widened the opportunities for intensified land use. Nowadays there are few pioneers who are willing to go into the bush with an axe and a team of oxen to clear a little land this year and a little more next year until they have a holding of respectable size; and there are few governments willing to run the risk of having them become a public charge if the venture fails. As a result, roads, schools and other community services have ordi-

narily to be provided before a new area is opened for agricultural settlement, soil surveys have to be made in order to avoid attempts to farm sub-marginal lands and government assistance ordinarily has to be provided to help in clearing the new farms. All this is expensive — in most cases so expensive that it would be cheaper to obtain an equivalent additional output through the more intensive use of land in areas already settled.

Intensification of land use can come about in a number of ways. It can take place through the improvement of land already occupied but never cultivated.* In Eastern Canada the proportion of improved land to total occupied land has been fairly stable for the last 50 years and is unlikely to increase very much. In the areas of later settlement in the West, on the other hand, the proportion of improved land has been rising. This trend seems likely to continue and may well contribute more productive acreage to Canadian farming over the next twenty-five years than the amount to be expected from the development of new land. Another method of intensifying land use is by reducing the amount of land under summer-fallow. Ever since large-scale wheat production was successfully established on the prairies the system of rotation used has involved keeping fields cultivated throughout the growing season without producing a crop.¹⁸ The original purpose was to conserve scarce moisture but the practice has also been recommended as a means of weed-control. How widespread it has become is suggested by the fact that in 1955 the area under summer-fallow amounted to over 20 million acres, so that a traveller flying west from Winnipeg on an early August afternoon would see below him field after field the colour of lamp-black with scarcely a hint of green or gold showing through and so scrupulously cultivated that the soil seemed to have been screened and sifted. We doubt whether there will be anything like so many black patches on the checkerboard by the summer of 1980. Summer-fallowing will always be necessary in many parts of the semi-arid brown and dark brown soil regions of the southern Prairies but in the black and gray wooded soil regions summer-fallowing, it now seems clear, is not necessary to good husbandry.¹⁹ Even if the area under summer-fallow in these regions were to be no more than cut in half, the acreage gained for the production of forage and grain crops would amount to nearly six million acres. Irrigation will also make a contribution of some importance to more intensive land use over the next two or three decades. Completion of the projects already planned, such as those on the Bow and St. Mary rivers in Alberta, will add some 800,000 acres to existing irrigated land in the Prairies and no doubt over the years this land will be farmed more intensively. It must be remembered, though, that much of the land already irrigated in the West is still being used for wheat-growing rather than for specialty crops or for livestock production, which alone could give

* Improved land is defined by the Dominion Bureau of Statistics as land which has been "once subject to ploughing".

an economic return on the capital invested; and that most irrigation projects require relatively large capital expenditures to produce a stated increase in production. Capital would be used more economically in most circumstances, it would seem, to finance the application on settled and developed land of new technological developments to increase agricultural output; and, indeed, we expect this to prove the principal method by which land use will be intensified over the next twenty-five years.

The most spectacular technological change in Canadian agriculture within recent years has been the mechanical revolution that has replaced horsepower with machines. Shortly after the end of the War, Canadian farmers found themselves facing labour shortages as a result of the rising wages being paid in urban areas; and at the same time more efficient mechanical equipment became available. It was apparent that only by mechanizing their operations could they manage with less labour, meet the competition from other industries for the services of the fewer hands they would still require, and earn larger incomes for themselves and their families. It would be less trouble, too, they reflected, to look after a tractor than a stable of horses, and it would be nice to get the harvesting done in one fell swoop. Fortunately, farm incomes had been relatively high during the strenuous War years so that many farmers were in a financial position to meet the heavy outlays that mechanization would involve. Accordingly, as soon as the conversion from war to peace-time production got underway, farm machinery began to stream in great volume on to Canadian farms, particularly in the West. The census taken in 1951 showed that for every hundred farms there were three times as many tractors that year as there had been in 1941, five times as many combines and three times as many trucks; and almost all this increase may be assumed to have taken place after 1946.²⁰ At the same time, the number of horses on farms fell drastically, dropping by two-thirds in Western Canada and Ontario and by one-quarter in Quebec and the Maritimes. This phase of the continuing process of mechanization has now pretty well run its course in most of the agricultural areas of Canada, although it should not be assumed that further striking mechanical changes are unlikely. It is possible, for example, that at some stage during the next two or three decades machines may become common for ploughing, harrowing, cultivating, seeding and fertilizing all in one operation,²¹ in rather the same way as nowadays on most prairie farms the harvesting operations that used to be spread over a period of weeks are all performed at one time by a combine. On the whole, however, it seems likely that the technological changes of most importance over the next twenty-five years will be those designed primarily to increase the productivity of nature rather than the productivity of labour — to increase, that is, output per acre, per unit of feed and per head of livestock rather than output per man-hour.

It may be, for example, that research with controlled radio-activity will be successful in producing more fruitful plants and animals; and

science may have other striking gifts in store for agriculture. But the technological advances we have in mind for the most part will be of a homelier character. They will come about through the wider use of cultural practices that have long been known and that will be applied more generally as soon as farmers are convinced there is sufficient demand to make them profitable. Already they have had sufficient influence on agricultural yields in Canada to give some idea of what further progress is possible. The record of Prairie wheat yields, which we discuss later, is difficult to interpret. But there is no doubt that in Eastern Canada yields of fall wheat and coarse grains have been greatly increased by the use of more fertilizer and better seeds. There has also been a great increase in potato yields, which have risen from an average of 125 bushels per acre in the years immediately before the War to an average of 192 bushels per acre in the period from 1951 to 1955, and even so, fall 30 or 40 bushels short of average yields in the United States. Biological improvements in agriculture have been of particular importance in making possible the great increase in Canada's output of livestock and livestock products over the past 25 years. Output from these farm enterprises has risen, on the whole, more rapidly than total agricultural output, and they have accounted for a rising proportion of farm cash income in each of the agricultural regions of Canada. This has come about through greater specialization, which has permitted more attention to be paid to practices designed to increase livestock output. Milk yields per cow, for example, have risen from just over 4,000 pounds a year before the War to more than 5,000 pounds in 1955; and are still well below average yields in the United States and many European countries. Increases in egg production have been even more remarkable, the annual production per hen having risen from 110 before the War to 171 in 1955. Chicks are now usually bought from special hatcheries rather than hatched on the farm. They are given vitamins like other carefully nurtured infants. Their feed is specially ground and mixed and comes in commercial packages. They are inoculated against a wide range of diseases. It is no wonder that in due course they lay so many eggs or appear on the table as such plump and tender broilers. Specialization in the production of beef and pork has not spread so widely as specialized poultry production. But there are enough farmers who have specialized in these enterprises to show fairly clearly the path which efficient production will take. Hogs will no longer be fed with whatever feed is available and cheap, as has often been the case on the Prairies; or with the skim milk left after the butter fat has been sent to the creameries, as has often been the case in Eastern Canada. The feed and care given them will ensure that most sows have two litters a year and that there is a large number of pigs in every litter. Beef herds will be kept for that purpose exclusively and will not be used for milk production as well. Artificial insemination will be used more widely to maintain high-quality strains. Above all, more attention

will be paid to pasture improvement and to the production of good forage crops. Most of the pasture in Canada consists of unimproved native grasses and its carrying capacity could be multiplied by the use of fertilizers and the planting of more nutritious grasses. It is principally through the application of such well known and unspectacular cultural practices as this that we would expect the output of Canadian agriculture to increase over the next twenty-five years.²²

To construct a significant measure of total agricultural output is particularly difficult because of fluctuations in crop yields and farm prices. However, it would seem that over the past 25 years the physical volume of agricultural output in Canada grew by some 30 per cent to 40 per cent. This increase was achieved with a smaller labour force and without much development of new agricultural land. We would anticipate that over the next twenty-five years agricultural output may grow by perhaps 65 per cent to 70 per cent and that this growth will be accompanied by only a very slight increase in the acreage of land in farms and a further substantial decline in the farm labour force. Increasing yields will enable Canadian agriculture to produce a much larger quantity of foodstuffs on little more than the acreage currently in use, while the increasing productivity of farm labour will permit output to rise while the labour force is falling.

We have stressed the important role that will be played over the next two or three decades by changes designed primarily to increase the productivity of nature. But many of these, of course, will also operate to increase the productivity of labour. The key facts about output per man-hour in Canadian agriculture are, first, that it is still lower than in any other sector of the economy, and, second, that it has been rising more rapidly than in any other. Unless there is to be a greater relative increase in agricultural prices than we foresee, average farm incomes in the future can keep pace with other incomes only if real output per man-hour in agriculture increases at least as fast as in other industries. We see no reason why that should not be the case so long as policies are avoided that would prevent sub-marginal land from being withdrawn from agriculture and sub-marginal producers from leaving the industry. Certainly the inducements for continuing innovation will be strong. Domestic demand will justify the introduction of many technological changes to raise biological yields, which will incidentally raise output per man-hour as well; and competition for scarce manpower will maintain the pressure on many farmers to apply more labour-saving devices. Field operations will be still further mechanized. And electric power will be increasingly used to run motors that will lighten the task of tending livestock. Nevertheless, we doubt whether livestock production can ever be so highly mechanized as the production of crops. It is for that reason that, although we have estimated that output per man-hour in agriculture will increase at an

average annual rate of 3 per cent until 1970, we think the rate may drop to 2.5 per cent in the following ten years, when livestock production will be becoming dominant throughout Canadian agriculture. It would be consistent with these productivity estimates for the labour force in agriculture to fall from 817,000 in 1955 to 735,000 in 1980.*

The slower rate of mechanization that we anticipate, particularly in the latter part of the period under consideration, when linked with the rising demand for livestock and livestock products, will tend to retard the decline in the number of farms in Canada. Since 1941 it has been dropping steadily as a result of the consolidation of some farms, particularly in the West, to make them large enough to reap the full economic advantages of mechanization, and the abandonment of others, particularly in the East, many of which were found to be either too small, too steep, or too stony for mechanized production. The trend toward fewer farms will continue. One reason is that the mechanization of field operations in Canadian agriculture is not yet complete. Another is that the mechanical revolution that has already occurred has left in its wake the need for further adjustments in farm organization. But the trend will be counteracted, particularly after 1965, by the need to increase output and intensify land use. For these reasons, we anticipate that the number of farms in Canada, which totalled 623,000 in 1951, may decline to 570,000 by 1965 and to 540,000 by 1980. This degree of reorganization, when considered together with our expectations concerning occupied acreage, would produce farms of an average size of 306 acres in 1965 and 326 acres in 1980, compared with an average size of 279 acres in 1951.** There will be fewer farms and they will be larger in size. But the overwhelming majority of them, we expect, will still be family farms, owned and operated on a family, rather than a corporate, basis. Such farms have proved efficient in the past and in spite of all the changes that we anticipate for Canadian agriculture, we see no reason to think that they will not serve Canadian needs well in the future.

Agricultural Policy

When you take down an almanac from a nail in the kitchen, the information you find in it may be as precise and reliable as the time at which the sun will rise on the third Sunday in March, or as nebulous as a prognostication of the weather at harvest time. Since what we have tried to

* We are aware that this numerical estimate of the labour force in agriculture, which is taken from the study prepared for us on *Output, Labour and Capital in the Canadian Economy*, (p. 309), does not tally exactly with the estimate presented on page 101 of the study prepared for us on *Progress and Prospects of Canadian Agriculture*. This is one case where we have not thought it necessary, or perhaps even entirely desirable, to iron out a minor discrepancy between the various estimates that have been made for us.

** Returns of the 1956 census show that by that year the number of farms had dropped to 575,000 and the average size of farms had risen to 302 acres.

say about future agricultural prospects in this chapter may occasionally be regarded as a kind of almanac for Canadian farming, we are anxious that it should not be misinterpreted or misused. A few readers may perhaps be so misguided as to take our statistical forecasts for gospel. Others may think so little of them as to make what we would regard as the opposite mistake and write them off as little better than old wives' tales. Forget figures, then, for the moment; and let us try to set out in very broad and simple strokes the main characteristics of the future that we foresee for Canadian agriculture over the next twenty-five years. In the first place, we think that in this country as well as in other industrialized countries in the Western world, there will be a latent tendency toward the over-production of agricultural commodities. We cannot see that external demand will be very lively over the next twenty-five years. Domestic demand, on the other hand, will rise fairly steadily and will determine the growth and changing structure of Canadian agriculture. The demand for livestock and livestock products will be greater than for any other farm commodities. There will be little development of new land. Unless unforeseen events arise to contradict the basic assumptions on which our whole inquiry rests, we think that a future for Canadian agriculture of that general kind is much more likely than any other.

Our views on policy issues, in any case, are rooted in that perspective. We would doubt the wisdom of large-scale programmes to extend the geographical limits of agricultural settlement. We would be hard to convince that Canadian agriculture as a whole is likely to benefit from the investment of large amounts of capital in monumental irrigation schemes. We would be skeptical of any immigration programme to bring agricultural workers to Canada which did not show itself fully aware that the agricultural labour force is declining and that the welfare of those left in agriculture depends in large measure on that process not being impeded. We would have questions to ask about the indefinite continuance of government payments to agriculture which would, either directly or indirectly, have the effect of perpetuating uneconomic farming enterprises. Finally, we would warn against any and every measure that might stimulate the tendency toward over-production and, in consequence, depress average incomes of Canadian farmers.

Those admonitions are all negative in character. But we do not mean to suggest that there are not many positive things that governments can, and should, do in this as well as in other sectors of the economy. The operations of the market and of the price mechanism will indicate many of the shifts and adjustments that will be required; and we have no doubt that Canadian farmers by and large can be relied on to respond effectively. This will be particularly true, in our opinion, over the next decade when the required increase in output and the shifts in production will not be very large. Governments, however, will have a role to play in

hastening and facilitating changes that would in any case be brought about by economic forces, and in tempering the winds of change so that individual farmers do not feel too fleeced and forgotten. There will thus be need for government assistance in agriculture over the next twenty-five years; but the assistance will probably take different forms than in the past.

It would be an anachronism to expect governments to continue to act in a way that was appropriate to the primitive, heroic age of Canadian agriculture, when great new areas of farm land were being opened to settlement and when great population movements were taking place. That period came to an end more than a quarter of a century ago, although the fact was long masked from view by drought, depression, and war. But if government measures to bring new agricultural land under cultivation and to settle new farming communities are no longer needed, there are many adjustments to be made in which governments have an important part to play. In some parts of the country, more lasting treaties have still to be negotiated with the physical environment and everywhere the process continues of adjusting agricultural production and organization to changing economic circumstances.

The droughts of the '30's proved that large tracts of land in the Prairies were not permanently suitable for raising crops; and under the terms of the Prairie Farm Rehabilitation Act, measures were taken in co-operation with the provinces to move many farmers from these areas and settle them elsewhere, to sow the prairies once again with grass, to organize community pastures and to help farmers and municipalities construct small-scale irrigation systems. This work has been highly successful and approaches completion. We would suggest, however, that it might be supplemented by action to relocate farmers who in some parts of the Prairies have had consistently poor crops and who have received payments year after year under the Prairie Farm Assistance Act. A limit might well be set, in our opinion, to the number of years over which farmers might receive such payments; and farmers who have had a succession of bad years might instead be given financial assistance to move elsewhere. As is well known, there has been much discussion of the probable cost and value of altering the physical environment of some parts of the Prairies through large-scale irrigation schemes. We have not felt obliged to assess such projects in detail. Insofar as they are designed to augment existing sources of hydro-electric power, we can see that at some point they may be needed. We can also appreciate that the large investment involved would clearly benefit the particular areas in question. Insofar as such projects, however, are intended as a form of assistance to Canadian agriculture, we doubt whether they are likely to prove their worth for many years to come. They would certainly provide a useful insurance against some of the worst effects of drought by supplying pasture and fodder that would enable herds to be maintained. We wonder, however,

whether the coverage of such insurance might not be greatly widened by proceeding with smaller and more scattered irrigation schemes. We can also see that more irrigable land would help to meet the demand for livestock products and special cash crops that will be much greater twenty-five years from now than it is at present. We would suggest, however, that such large and costly schemes should not be implemented until there is a prospect within a measurable number of years of sufficient demand developing for these agricultural commodities to persuade farmers to take the trouble, and make the additional private investment, that would in many cases be required to produce them. Otherwise there would be little effect on agriculture from the large outlay of public funds, since most of the farmers in the areas concerned would simply go on growing wheat as they are doing at present; or, alternatively, if the water for irrigation were made available at artificially low prices in order to induce farmers to use the land in the ways contemplated by the schemes, the result might well be overproduction of the products appropriate to irrigated land.

By and large, though, the task of bringing farming and the physical environment into harmony has been accomplished on the prairies and the problems that still remain are marginal. That is not true of other parts of the country. Driving along the highways in Nova Scotia, for example, we noticed the forest reasserting itself in many places, with seedlings one or two feet high forcing their way through the pasture. In many cases that verdict no doubt should be accepted and the land used for the purposes of forestry rather than for agriculture. Without land-use surveys, however, it is difficult to know where the land should be used in much the same way as it is at present, where farming will continue to be unprofitable until larger farms can be created, and where the best solution for the farmer would be a combination of some land in agriculture and some land in a farm woodlot.

It was for that reason that we drew attention in our *Preliminary Report* to the need for preparing reliable land-use surveys. We were pleased to see that this suggestion won influential support and that a committee of the Senate has since been established to consider this problem. We feel sure that when land-use surveys have been made, it will be found that if average incomes of those engaged in agriculture in many parts of the country are to be raised, holdings will have to be enlarged and some farmers encouraged to take up other occupations. We suggest that wherever the people and government in a province are interested in co-operating in such a plan, the Federal Government should assist in working out a better system of land use, including the provision of credit facilities to finance the consolidation of holdings and the provision of assistance, financial and otherwise, to people who may wish to be relocated and re-established in other industries. Such a programme would be applicable to any area where it seemed desirable and where the provincial government

was prepared to co-operate. But we think it might be of particular advantage to the Maritime Provinces where the problems of subsistence agriculture are particularly acute. In any appraisal of the best land-use in this area, we suggest that attention be directed toward increasing the forest potential as a means of increasing the incomes of farming people in the Maritimes.

Adjustment of farm organization and farm production to changing economic circumstances, including changing technology, will also, in our opinion, call in some instances for rather more generous credit arrangements than are now available. Too easy credit can aggravate farm problems by inducing an expansion in output that would lead to lower prices. Scarcity of credit, on the other hand, can prevent a desirable rise in agricultural productivity by perpetuating antiquated types of farm organization. As the mechanization of Canadian farms continues, some farmers in all parts of the country will need more medium-term capital to enable them to buy machinery and equipment, and more long-term capital to enable them to enlarge their holdings, while the rise in demand for meat will mean that more capital will also be needed for the purchase of livestock. As the result of these cumulative developments, the capital value of farm businesses will be rising on the average; and there will be difficulty in transferring them from one owner to another — in many cases it will be from father to son — unless somewhat more generous credit arrangements are available. So long as farm incomes are relatively low and irregular, it is important that fixed annual payments on mortgages and other forms of indebtedness be no larger than is necessary. Appropriate rates of interest will vary from time to time, but annual payments can be reduced by extending the number of years over which the principal will be repaid. Since the long-range prospects for farm income and for the ability of farmers to service loans would seem to be favourable, we think that farm credit agencies might appropriately extend the period of repayment up to 40 years for long-term loans and up to five or six years for medium-term loans. Extension of credit on somewhat easier terms is one way by which the adjustment of Canadian farming to changing economic conditions can be facilitated. Another way is by altering the emphasis of research programmes. In view of the heavy demand that is anticipated for beef and other livestock products, it would seem sensible for research programmes to stress the improvement of beef cattle, feeding for beef production, production of forage crops, and the carrying capacity of grasslands.

The problems we have been discussing may be called production problems in that they involve changes in both the level of total output and in its commodity composition. But most of them will attract public attention not so much because of interest in production goals or even production shifts as because of concern over average farm incomes. This

concern is parallel to concern over the levels of employment in other sectors of the economy. It has grown as agriculture has become increasingly commercial and moved more and more to a cash basis. Although agricultural output will be a declining proportion of total output over the next two or three decades, and the labour force in agriculture will be declining in both relative and absolute terms, the level of average farm incomes will continue to figure largely in public discussion in Canada for a long time to come for the reason, as we have mentioned earlier, that farm incomes both fluctuate more than others from year to year and also tend to lag behind others in the long run. That is still true, although a considerable improvement on both counts is to be discerned over the period from 1939 to 1955. During those years variability in farm incomes was damped down by strong overseas demand and by steadily rising domestic demand which had the effect of stabilizing farm prices. Over the same period there was also a relative improvement in average farm incomes compared with others. This was because technological change was rapidly increasing output per man-hour in Canadian agriculture and the movement of labour off the farms was being encouraged by prosperity in other sectors of the economy. It must also be acknowledged, however, that important contributions toward improving the relative position of farm incomes in these two respects were also made by government action to support farm prices and to give statutory backing to producer marketing boards. It is these instruments of agricultural policy that we must now consider.

Because of the exceptionally wide fluctuations in farm prices and the dominant influence they exert on farm incomes, we think there is ample justification for farm prices being supported by governments. As experience in the United States has shown, however, agricultural price support schemes can very easily lead to rampant over-production, which can be corrected — if at all — only by direct and drastic controls on production. That is a sequence of agricultural developments that we in Canada should avoid like the plague. In this matter the beginning of wisdom is to realize that the proper purpose of price support programmes is analagous to the purpose of unemployment assistance: their purpose should be to prevent distress on the farms. But if that is the beginning of wisdom, it is not its end; for it will always be a nice calculation to set the support level for a particular commodity high enough to prevent distress and yet low enough to avoid over-production. This is an undertaking of such importance and delicacy that, in our opinion, it should be entrusted to a board of full-time members who would be relieved of other duties so that they could concentrate on anticipating the occurrence of emergency conditions and on determining the effects of particular prices on production and incomes. In addition to recommending the level at which the prices of particular farm commodities might be supported from time to time, such a board might be left free to recommend also how this should be done. In general, two possible methods are available: the Government can either

purchase agricultural commodities when the prices fall below the stated support level, or it can allow farmers to dispose of their products at the prevailing market prices even though these may be below the support level, and then make up the difference with deficiency payments. The latter procedure would avoid the difficulties in which the Government would otherwise be involved in selling, storing, and disposing of surplus commodities. It would also have the advantage of letting the producer see the return that his products would bring him in a free market; and this knowledge might be expected to lead to a more realistic pattern of production. In our opinion, however, it is not possible to say that deficiency payments in all circumstances are to be preferred to direct price supports; and an advisory judgment on this point, as well as on the level of support, might well be sought in each particular case from the board. Finally, we are convinced that neither the Government nor the board in administering the price support programme should be bound by any automatic formulae.

Our view of the causes of low and variable farm incomes leads us to believe that producer marketing boards can, in principle, prove useful instruments contributing to orderly marketing, greater stability of farm incomes, and improvement in the relative position of farm incomes, without exploitation of the consumer. However, we recognize that organized marketing boards possess no magic which will unfailingly convert the hopes and aspirations of producers into reality. Agriculture, as we have already tried to describe it, is a complex industry. The practical problems of effective organization and operation of marketing boards, and the extent of the gains to be expected from the rationalization of marketing processes, differ considerably from product to product. The proponents of marketing boards point out that other groups in the community, including both labour and industry, are organized on a large scale, and that it will be increasingly necessary for farmers to organize in a similar way. While some farmers, and others as well, may object to the compulsory feature of these boards — without which they would soon become ineffective — the future growth of the co-operative movement and of compulsory marketing boards based on the will of the majority seems highly probable. This we concede; but we would counsel a cautious approach, a process of gradual building, proceeding first in those situations which offer the greatest prospect of permanent achievement, each addition designed by skilled and experienced architects intent on particular needs and problems.

There remains the special case of wheat marketing. Wheat is such an essential foodstuff that, in most countries of the world, governments take a close interest in its production and distribution. They bonus domestic production. They subsidize exports. They limit imports by the use of tariffs and quotas. In many parts of the world, moreover, the demand for wheat is highly inelastic; and this complicates the problem of selling. Wheat growing is also particularly open to hazards of the weather, so that yields

may vary phenomenally from year to year. For all these reasons, it is quite proper that the marketing of Canadian wheat should be regarded as a special case requiring special arrangements. During our public hearings, we were impressed by the wide support expressed by Prairie producers for the method under which the wheat and coarse grains grown on the prairies are marketed by the Canadian Wheat Board. We believe that this general method should be continued.

Nevertheless, we doubt whether the procedures followed by the Wheat Board are fully adequate to deal with a situation in which one bumper crop succeeds another year after year, and in which there are substantial surpluses elsewhere in the world. In our *Preliminary Report* we proposed certain procedures to be put into effect in the event of such circumstances persisting. Our proposal involved giving producers advance information on the total quantity of wheat which the Board would anticipate accepting for delivery during the crop year, and guaranteeing minimum receipts to individual farmers based on this estimated quantity. It was assumed that under conditions of persistent surpluses, the judgment of the Board on probable deliveries would be helpful to farmers in planning their production programmes; and that, in times when the ability of the Board to accept deliveries was acknowledged to be limited, some producers would find more attractive alternatives. At the same time it was proposed that wheat producers would be assured of minimum receipts even if the Board found it impossible — or because of differences in grades, inexpedient — to accept deliveries from individual farmers. This feature of the plan implied payment for wheat held on the farm. In all other respects the procedures envisaged have been employed by the Wheat Board at one time or another. The proposal set out in our *Preliminary Report* is a matter of public record and can be referred to, if need be, whenever there is a conjunction of full elevators, large crops, and strong competition from other suppliers of wheat, so that the income of Prairie wheat farmers would be very low unless the procedures presently followed by the Wheat Board were supplemented in some way.

We realize, of course, that it is impossible to say how frequent bumper crops are likely to be, or when world surpluses of wheat are likely to be replaced by world shortages. Our view of the probable relation of world supply and demand over the next two or three decades and of probable Canadian wheat sales is not so pessimistic as to lead us to suggest that there should be a permanent reduction in the acreage sown to wheat on the Canadian prairies. On the other hand, we are aware that it can be argued that, since the turn of the century, there has been a tendency throughout the world toward the over-production of wheat.²³ We are also aware that comparatively recent changes in wheat growing on the Canadian prairies may be producing crops that, on the average, are in excess of the

amount that can be sold. Much depends on how the figures for yields per acre which are shown in Table 8.5 are interpreted.

Table 8. 5

CANADIAN WHEAT PRODUCTION, ACREAGE AND YIELD
(average for five-year periods, 1901-55)

Periods	Production (mil. bu.)	Seeded acreage (thous. acres)	Yields (bu. per acre)
1901-05.....	86.5	4.36	19.8
1906-10.....	126.0	7.09	17.8
1911-15.....	248.4	11.70	21.2
1916-20.....	228.4	16.97	13.5
1921-25.....	366.5	22.08	16.6
1926-30.....	435.3	23.91	18.2
1931-35.....	320.8	25.53	12.6
1936-40.....	364.1	26.52	13.7
1941-45.....	378.2	21.40	17.7
1946-50.....	393.9	25.42	15.5
1951-55.....	534.5	24.54	21.8

SOURCE: For the years 1901-07 data provided by the Dominion Bureau of Statistics from Food Research Institute Wheat Studies, Stanford University; for the years 1908-47, D.B.S. *Handbook of Agricultural Statistics* Reference Paper No. 25, Part 1, p. 1; for the years 1948-54, D.B.S. *Grain Trade of Canada, 1954-1955*, p. 9; for the year 1955, D.B.S. *Quarterly Bulletin of Agricultural Statistics*, January-March, 1956, p. 26.

There has been exceptionally good growing weather for wheat in every year in this decade, with the exception of 1954 and 1957, and that has no doubt been more responsible than anything else for the exceptionally large crops that have been harvested in Canada. It is also possible, however, that technological changes have been operating to increase prairie wheat yields. This was suggested to us by witnesses representing the Manitoba Federation of Agriculture, the United Grain Growers and the Alberta Wheat Pool; and we are not inclined to set their opinions aside lightly.²⁴ In any case, such views would seem highly plausible. Through rapid seeding and rapid harvesting, better use is now made of weather conditions. In addition, the use of weed killers and pesticides is now widespread. These technological changes may well be working to increase the size of the harvest in favourable years and to prevent extremely low yields, even in times of drought. The question of whether new techniques are increasing prairie wheat yields should perhaps be regarded as "not proven". It may be, for example, that they are merely operating to offset the tendency toward declining yields that otherwise might now be apparent on the prairies because of reduced soil fertility. But, in our opinion, the possibility should be borne in mind that with these new techniques of wheat production, there may be a tendency for more wheat to be harvested on something like the present acreage in the Prairies than can be sold on the average over a term of years.

If that proves to be the case, there will be even more reason for giving careful thought to how supply might best be adjusted to demand should

that become necessary. No doubt others may be able to think of a better plan than ours for making the adjustment. We would suggest, however, that no such plan is likely to prove satisfactory to prairie wheat growers unless it contains some provision for providing them with at least a minimum income in periods of extreme surplus. Nor is it likely to help maximize wheat sales unless, while treating individual producers equitably, it yet manages to give the Board latitude to accept delivery of the more salable grades of wheat and defer delivery of others. These were among the principles incorporated in the proposal we put forward for a supplementary procedure to be used by the Board in an emergency situation of wide and persistent surpluses with bumper crops. Perhaps such a situation will never last long enough to necessitate restrictive measures. Perhaps the Wheat Board will always be rescued in time by crop failure in Canada or elsewhere. But if action to restrict wheat production ever does become necessary, we think the principles mentioned above deserve consideration by whoever may be responsible for finding the least distasteful method for adjusting production to effective demand.

FISHERIES

THE ROLE OF AGRICULTURE in the Canadian economy is more than twenty times greater than that played by fishing and fish processing, but the 30,000 enterprises which are comprised in the latter industry vary no less widely than their farm counterparts in productive techniques, size, efficiency, and earnings. Moreover, although they account for less than one-half of one per cent of total national output and income, these enterprises utilize no fewer than 150 commercial species of fish, from the abalone and ale-wife to the wolf-fish and yellowtail; and they process and market more than four hundred different products, including staples such as salt cod, luxury foods like lobster, and non-food commodities ranging from seal skins to cod liver oil. In an industry characterized by such variety, averages and aggregates alone must be used with more than the usual amount of reserve, for it is not only in the physical sense that the fisherman using primitive, inexpensive and manually-operated equipment from a one-man dory is not in the same boat as the crewman on a 200-ton dragger equipped with the latest electronic navigating and fish-finding equipment. Similarly, the productivity and prospects of a shareman in the small-boat fisheries of the East Coast with an average income of around \$250 a season are hardly to be compared with those of an Atlantic dragger skipper or a British Columbia salmon fisherman whose annual income from fishing may be more than \$5,000; and the fish processing done by the fisherman's family who eke out a few extra dollars by laboriously spreading and drying their scanty catch in the sun of Newfoundland bears little resemblance to that carried out by the well-paid workers in a modern, highly-mechanized freezing or canning plant.

Nor do statistics of employment by themselves reveal the full measure of the fishing industry's importance as a source of livelihood to numerous Canadians in places where alternative cash incomes are not readily available. It is suggested in the study prepared for us on *The Commercial Fisheries of Canada* that as many as 75,000 people may take part in commercial fishing operations at some time during the year, but to a substantial proportion of these fishing is not an important source of income;¹ on the other hand, the labour force figures, which show an average of some 25,000 people engaged in fishing throughout the year, undoubtedly underestimate the number of citizens who are dependent on this activity for a major part of their annual earnings. The most meaningful figure, in our

view, probably lies in the range of 35,000 to 40,000 persons, to which must be added an annual average of some 15,000 Canadians engaged in the processing side of the industry. On a regional basis, employment in the fisheries varies widely from its national average of just under one per cent of the labour force, from a high of about one-sixth of all employment in Newfoundland to a low of under one tenth of one per cent of the total in Ontario. But even though less than one person in two hundred is employed in fishing and fish-processing in each of the five central provinces, many individual communities and settlements scattered from the St. Lawrence to Great Slave Lake look to the industry as the decisive or only source of their livelihood.

A striking example of the lack of alternative employment opportunities normally available to many of those presently engaged in the more marginal segments of the fishing industry, and the attraction of those opportunities when they do occur, is to be found in a recent government publication,² where one of the reasons given for the decrease in the catch of the white whale fishery of Hudson Bay in 1955 was that there had been a late start in full-scale hunting because most of the Eskimo hunters normally dependent on this activity had gone to work for an insurance company on the salvage of a large plane forced down on the ice the previous winter! In contrast, the highly commercial salmon industry of British Columbia is constantly faced with vigorous competition for labour from other industries, and wages and working conditions have had to be kept at levels broadly competitive with those of other occupations, as evidenced by the fact that in 1954 the income of all salmon fishermen from all sources in that province was \$3,056, or \$1 less than that of the average earnings of all paid workers in the Canadian labour force.

Perhaps the clearest view of the future of this diverse industry may be obtained by focussing on the prospects for the main products of each of the regional fisheries — on the Pacific Coast, on the Atlantic, and in the freshwater lakes. But any forecasts we make can be not much more precise than those of the fisherman estimating his day's catch before he sets sail in the morning; our guess, like his, may prove wide of the mark long before sundown. We will, however, try our luck first in the Pacific Ocean and set our nets for the salmon fishery, which represents just over two-thirds of the value of the region's fish landings and a slightly higher proportion of their value when marketed by fishermen and fish processors to wholesale, retail or export outlets. Both the primary and processing sides of the salmon industry produce a uniform, high-value product which lends itself readily to highly mechanized mass-production methods — the capital investment in an average primary enterprise on the West Coast is more than five times as high as in the Atlantic region, while 83 per cent of the output of the British Columbia processing industry comes from plants with sales of over one million

dollars annually. The industry has been able to concentrate in the larger centres to take advantage of the full economies of large-volume operations both because the salmon runs are well defined geographically (some 20 million salmon annually head for the Fraser River system alone) and because refrigerated packing boats have reduced the importance of distance. The whole West Coast industry is in fact in a strong position to face the future, being with few exceptions relatively well-integrated, efficient and productive; with less than one-sixth of total Canadian employment in the fisheries it now produces over one-third of the industry's output. We do not expect this regional fishery to have any great difficulty in meeting its future capital requirements in view of the fact that recent expenditures for larger boats, modern equipment, and new machinery have been running at a rate not very different from the \$6 million to \$7 million annually that we foresee for the future. The Pacific industry will, we believe, also continue to be successful in meeting its labour needs by raising productivity and wages, and its labour force will probably decline slightly further in absolute terms.

The salmon population will not of course expand automatically to meet future requirements. Further study will be needed on the spawning and migratory habits of the species as well as on the control of predators and of stream pollution — a particularly important question in view of the increasing effects on British Columbia rivers of logging activities, industrialization and the spread of urban settlement. We have assumed, for the purposes of the forecasts which follow, that research will be successful in devising techniques which will permit salmon stocks to be maintained and exploited concurrently with any power developments that may take place. The international efforts that have been made to conserve and manage fish stocks must also be continued, for although much has already been accomplished, we will never be in a position to be careless about the supply of this important resource. It is estimated that with improved utilization, knowledge, and techniques, the Pacific salmon stock might support an increase of over 100 per cent in the total salmon catch. The market for salmon in 1980, as for fish as a whole, will be closely related to North American population growth. Three-quarters of the catch is now canned and of this about two-thirds goes to the domestic market, a proportion which it is conservatively estimated will be maintained in the future. United States sales may account for 10 per cent of the pack by 1980 — considerably more if there should happen to be any worthwhile lowering of the present tariff on canned salmon. Export markets overseas, which used to take well over half of the total pack, may continue to be subject to some currency and trade restrictions, although a relative expansion in this market may be foreseen. The increase in sales of fresh and frozen salmon should be considerably greater — exports to the United States, where the tariff on these items is not a significant obstacle to trade and where domestic deficiencies will

probably increase, may rise by more than 75 per cent, while an even faster growth will occur in Canada itself.

The growth of the other Pacific fisheries cannot be forecast with any great degree of precision. The future of the herring fishery, which now accounts for about 10 per cent of the regional total and in which the catch is largely processed into fish meal and oil, will depend in large measure on scientific discoveries about the size and habits of the stock and on the development of markets; an increase of from one-third to one-half is well within the realm of possibility. The prospects for expansion of the halibut fishery, which accounts for another 10 per cent of the total, are also in large measure tied to the supply of the raw fish that will be available; at the present time the highly specialized halibut fishing boats are restricted to a quota which in many cases limits fishing to only a few weeks of the year. While conservation measures have undoubtedly contributed to the recovery of the halibut stock from its low levels of three decades ago, other factors influencing the supply of this fish make it difficult to predict a very substantial increase in the catch by 1980. About three-quarters of the Pacific halibut is marketed in fresh and frozen form in the United States over a comparatively low tariff while the rest is almost entirely consumed in Canada; no problem of markets is foreseen for this fish over the longer run. Sales of other Pacific sea products including groundfish, crab, clams and anchovies, should be capable of rapid expansion, though not in all cases without better merchandising and selling techniques.

Now let us try another ocean and see whether we can get a draft of what the future may have in store for the Atlantic fisheries, which accounted for just over half of the \$90 million to \$95 million at which all Canadian fish landings were valued in 1954 and 1955. However, on the basis of weight the region's share of the national catch of two billion pounds annually is nearly two-thirds — the Atlantic species are typically of lower price than those found on the West Coast or in inland waters. A balanced assessment of the future of the regional industry must take this into account, together with the fact, indicated in some of the figures given earlier, that the average income and productivity of the Atlantic fisherman is well below the national average. But before we look at prospective productivity trends, we first must try to assess the outlook for demand and for the resource supply. Rising incomes and the desire for variety in the diet suggest a favourable future for the higher-priced species like salmon, scallops, oysters, swordfish and tuna, which together account for about one-tenth of the value of regional landings. The market prospects for lobster, which represents just under one-third of the Atlantic regional total and a considerably higher proportion in the Maritime Provinces, are also extremely good; however, if the stock is to continue to be managed on a sustained yield basis it is doubtful if the catch can be

substantially increased. The fortunes of the herring and sardine industries, as on the West Coast, will be largely dependent on improvements in the method of locating and catching herring; if a stable and increased catch is obtained these industries could greatly expand their sales of consumer products.

Practically the entire balance of production from the Atlantic fisheries, half of the total, comes from the groundfish species, of which cod accounts for two-thirds; these resources, with the possible exception of the fairly heavily exploited haddock and halibut stocks, are likely to be more than adequate to support the catch required to meet foreseeable demand. The most important source of demand will continue to be export markets, which now absorb about two-thirds of the output of Atlantic groundfish; this proportion is about the same as that applying to exports of all Canadian fish products in recent years. However, a sharp distinction must be made between the export outlook for fresh and frozen Atlantic groundfish and for the same fish in salted and dried form. Exports of the latter products are, of course, still important — in 1955 some 60 per cent of cod production was salted, mainly for sale abroad — but foreign sales have fallen over the years to less than half their volume of four decades ago. We expect these exports to go on declining from their present level of 125 million pounds to about 100 million pounds in 1980, with relative prices continuing to show an unfavourable trend. In the once important Mediterranean market, exchange restrictions and the encouragement of domestic fishing fleets will cause sales to drop still further, while exports to the United States, mainly for boneless production, are also likely to fall because of rising processing costs in this American industry. On the other hand, Brazilian markets, which have been almost entirely closed to our producers because of currency difficulties could conceivably be an important source of demand. The main market, however, will be the Caribbean area; sales may increase to 90 million pounds from the present 55 million as population grows, even though per capita consumption of salt fish will probably fall as rising incomes and expanding industrialization permit an increase in the consumption of more expensive meat, agricultural, and fish products.

An additional factor limiting the expansion of the Canadian salt fish industry, in the absence of unforeseen technological advance, may be the shortages of manpower and capital resulting from the expansion of more productive branches of Atlantic fishing. Consumption of fresh and frozen groundfish is expected to continue to increase rapidly as improvements in refrigeration and processing methods make them more appetizing and convenient to use. The growth of markets for these products will be closely related to rising incomes and population in North America, and sales overseas will continue to be relatively unimportant. United States consumption of groundfish fillets, the principal form in which fresh and

frozen Atlantic fish is exported, may very nearly double, and even on the somewhat pessimistic assumption that Canada will not maintain its present 75 per cent share of total American imports, sales to this market should rise by four-fifths. This estimate is based on the assumption that United States tariffs on packages and block fillets, presently equivalent to about 13 per cent *ad valorem*, will not be increased as has frequently been proposed by the United States industry. On the other hand, any great expansion in the per capita consumption of fish sticks would probably increase the total American market for our groundfish, despite the fact that these products are to a large extent substitutes in the eyes of consumers for the fillets from which they are made. Although some people are optimistic about the growth of the market for fish sticks if packaging and quality can be improved, Canadian processors will not be able to serve this market directly unless the United States tariff is considerably reduced. Domestic consumption of fresh and frozen Atlantic groundfish should more than double over the next twenty-five years, as should the production of fish meal from Atlantic species for use as a high-protein feed in agriculture. In summary, we expect the catch of Atlantic groundfish may be nearly twice as large in 1980 as it is today, although because of over-capacity in some sections of fish-processing, there will not be a parallel increase in that industry.

These estimates of future production from the Atlantic fishery will not, however, be realized without a very substantial increase in productivity — the net value of production of the average Atlantic fisherman is about one-sixth that of the typical member of the Ontario labour force and just one-third that of the average worker in the Atlantic region itself.³ The productivity differential in the processing side of the industry, if less unfavourable, is also very substantial. We are, however, hopeful that a significant increase in efficiency and output will take place, not only because there is a substantial backlog of unused technology to be applied but because of recent achievements in the industry. Outlays for bigger and faster fishing boats, power equipment of all kinds, and electronic fish-finding, navigational and communication devices have been rising rapidly at the same time as investment in small boats has been declining to a fraction of its level 20 years ago. Increased capital, better techniques, and more sea-worthy boats have caused the catch and incomes of fishermen to rise very noticeably — more days can be spent at sea, new fishing grounds reached, and uncertainty and hardship considerably reduced; the catch of a fisherman on a modern well-equipped deep-sea dragger, which represents an investment of up to \$15,000 per employee, is very much greater than that of the inshore fisherman with perhaps \$500 worth of equipment who, even if the elements are kind, can rarely expect the season to last more than six weeks.⁴ In processing, output per man has also been increased as larger and more mechanized plants have been built to use new filleting, freezing and storage techniques.

The main factors underlying this rising productivity in the Atlantic fishery will undoubtedly work with more force and wider effect in the years ahead: research and education will increase the ability and determination of wider segments of the industry to deal with their difficulties; the relatively favourable market for fresh and frozen fish will continue to encourage the development of more modern processing operations; and the possibility of more acute labour shortages in the industry will further diminish the opposition to bigger boats and more productive equipment which has often impeded progress in the past. As the amount of new capital required to modernize the regional fishery will be considerably more than has been invested in recent years, it remains to be seen whether the industry will be able to raise and apply these sums without an extension of the present framework of federal and provincial government assistance. In any event, inflows of capital will undoubtedly be matched by an outflow of labour of perhaps 20 per cent to 25 per cent over the period, although the combined effect of a higher catch and lower employment will mean much larger incomes for those who remain.

However, the greatest part of the long-run decline in employment in this fishery has in fact already occurred; since 1947 the number of fishermen in Newfoundland alone has fallen by over 40 per cent to about one-third of its level 40 years ago, while in the whole Atlantic region the decline has been well over 20 per cent. Moreover, growing incomes and education, better communications, and improved employment opportunities should combine to ensure that future labour mobility is higher than it has been in the past. Some spots of stagnation will of course remain, and some small secluded communities will survive in which fishermen will have to be prepared to supplement their earnings in other seasons in occupations like farming or logging. In general, however, we believe that modern boats and improved refrigeration both ashore and at sea will lead to more centralization of population in towns capable of supporting an integrated fishing operation based on a large specialized processing plant. This trend will continue not only because of the dwindling importance of fishermen and processors being located in scattered settlements near the fish supply, but because the people living in such isolated localities are increasingly aware of the growing number of alternative employment opportunities and are anxious to move to places where social and cultural activities are greater.

Low productivity, under-employment, and lack of alternative opportunities also characterize segments of the freshwater fisheries, which supply about one-tenth of total Canadian marketings. The factors operating in other sectors of the fishery will undoubtedly bring about further significant increases in efficiency here as well, but a few pockets of poverty and inefficiency will continue to be found, particularly in the North. The main demand for fresh or frozen pickerel, whitefish, lake trout, and other

freshwater species in the next twenty-five years will still come from the United States, although Canadian demand is also expected to grow very quickly. However, because most of our 260,000 square miles of inland waters are subject to the competing claims of industry and recreation, it is unlikely that the fish stocks can support an increase in the catch of much over 50 per cent on a sustained yield basis, even with intensified activity in more remote regions; this, together with rapidly rising demand, suggests a considerable rise in relative prices. Sport fishing activity, which yields a catch equal to one-quarter of the inland total and which is indulged in by one of every ten Canadians, will probably grow *pari passu* with population, but the catch per angler will almost certainly fall.

In summary, we expect the weight of all Canadian fish landings in 1980 to increase by some 60 per cent; because of a shift in demand to the more valuable species and highly-processed products, marketed values should gain even faster. Despite this growth, over-all fish consumption in North America will still account for less than 10 per cent of that of meat, poultry, and eggs, largely because competing farm products on this continent will continue to be relatively favourably priced. Both fishing and processing will use more capital per man, and are likely to require a total gross investment of at least \$300 million over the next quarter century. Concurrently, new methods and machinery will cause employment to fall, individual incomes to rise, and seasonal variations to be reduced. Exports may diminish slightly in importance as Canadian population and per capita consumption grow, although sales to the United States, mainly in the form of fresh and frozen products, are expected to account for a rising proportion of exports and may continue to absorb over half of domestic production. Because our fisheries generally should be able to maintain their competitive advantage, imports are likely to remain complementary to Canadian output for the most part. Underlying all these developments will be the combined influences of education, scientific discovery, and the existence of higher-paying occupations elsewhere, which together will cause the Canadian fishing industry to become much more commercial, specialized and productive. We do not believe it is in the industry's interest to resist this trend.

Rather than try to emulate the restrictive trading behaviour of other countries, we hope that Canada will take every opportunity to remove or reduce barriers to international trade in fish and to expand commercial markets overseas. It may, however, be necessary for Canada to re-examine its doctrine of territorial waters to remove certain anomalies and inconsistencies. This would raise many complex problems of treaty and international law, but at present government regulations which forbid Canadian trawlers of over 65 feet in length from fishing within 12 miles of the mainland on the East Coast, can only be enforced against foreign vessels within the three-mile territorial limit.

Domestic policies should be constructive — designed to ease inevitable changes, rather than to impede them and make them more prolonged and painful. Efforts should therefore continue to be devoted to such activities as biological and technological research, education, and inspection services, for these programmes, when wisely conceived and executed, have done much to raise the efficiency and quality of fishing and fish processing. Similarly, soundly based federal and provincial loan schemes, which have in the past provided productive capital to both sides of the industry, can probably play a useful role, while continued Canadian collaboration in international efforts to conserve or increase fish stocks will be essential.

FORESTRY

IN AN EARLIER chapter we suggested that Canadian economic history, until quite recent times, could be seen in its essence in terms of a series of relatively few staple commodities for export, coming forward in sequence to supply the central thrust to our economic development. Fishing, the fur trade, then forestry — initially for the shipment of large timbers to Britain — were the headwaters of the stream of Canadian growth. Later the stream was joined by agricultural products, specifically the rushing current of wheat which flowed to world markets; then came the industrial materials, of which lumber and newsprint were among the first. The process continues, with great tributary inflows of aluminum, the non-ferrous metals, oil and iron ore, but now the main stream of development itself has become broad and seems to have an impetus of its own. We see it now as more than just the sum of these individual parts. Forest products appear two or three times in this sequence. In 1868 such products made up about 40 per cent of our commodity exports, while throughout the 1926-55 period, excluding the War years, the proportion varied from a quarter to a third. Currently, three forest products, newsprint, lumber and wood pulp are among our first ten export items, with newsprint heading the list.

The forest industries comprise many different items which are produced and marketed in diverse ways. Within the group are production units which are among the smallest as well as among the largest in the economy, such as the small farm woodlot at one extreme and the giants of the pulp and paper industry at the other. Output ranges from elementary wood procurement to relatively high stages of processing and fabrication. Markets for the individual firms producing wood products vary in size from the small local rural production and sale of rough lumber to world-wide distribution of newsprint.

For Canada, neither the over-all importance nor the diversity of conditions in the forestry industries should be surprising. Lumber in one form or another has been used in the building of structures and the manufacture of furniture and equipment from earliest times; despite the emergence of steel and other materials, lumber continues to be an attractive commodity to use in many activities. Forests are unevenly distributed over the globe, and Canada has been fortunate to have some of the finest stands of timber found anywhere; thus Canada has long been an exporter of lumber to world markets.

The growth of newspapers as a medium of mass communication and advertising and the inventions which made newsprint relatively cheap brought forth a quite phenomenal increase in the world demand for newsprint during the last 50 years, though one for which the rate of growth has gradually diminished. The increase in consumption was particularly rapid in the United States. More recently the adaptation of paper to packaging and the increased use of paper as a building material have accounted for a phenomenal growth in the consumption of other pulp products. Indeed much more of the world consumption of wood pulp is accounted for by coarse and fine papers, and paperboard nowadays than by newsprint. The availability of large accessible softwood forests in Canada; proximity to the United States market and comparatively cheap sea-borne transportation to overseas markets; and the availability of large-scale resources of hydro-electricity; these have given Canada a strong competitive position in pulp products. Newsprint is Canada's biggest export, and it flows to many parts of the world. Restrictions in other countries against the importation of highly manufactured pulp products other than newsprint and wood pulp, have limited Canadian participation in the large and rapidly expanded foreign consumption of coarse and fine papers and paperboard. As establishments engaged in the manufacture of pulp products must be large in size to be efficient and as the finished product can bear higher transportation costs per unit of weight or bulk than lumber, there are fewer firms and larger-scale enterprises in the pulp and paper industry than in other forestry industries.

Canada's forest endowment has indeed been generous. Over 40 per cent of our land area is covered by trees and more than half of this is now capable of producing merchantable timber. Over 10 per cent of the world's output of wood logged for industrial purposes comes from Canada's forests; as a world source of industrial wood we now rank third, the United States accounting for about 30 per cent and the Soviet Union for about 25 per cent of world output.¹ As we consume a smaller proportion of our output than do these other areas, Canada accounts for between 30 per cent and 40 per cent of world exports of wood products.

It would be wrong, of course, to suggest that the mere existence of large forest areas in combination with a limited domestic market serves to account for our important contribution to world forest product requirements. Clearly, many factors play a part. Ample availability of the complementary resources — water and power — was essential. So was the supply of capital and the close proximity to the large and rapidly growing United States market. So also was research by supporting industries and by governments and universities. South America, which possesses large forest resources, has not become a major producer or exporter of industrial wood products because of the absence of some of these other factors.²

Table 10.1
PRODUCTION TRENDS IN THE FORESTRY INDUSTRIES, 1925-55

Unit	1925	1926	1935	1945	1955	1955 as per cent of 1926	1955 as per cent of 1945
Annual value in millions of dollars							
Pulp and paper							
Lumber.....	193	215	163	399	1,327	617%	333%
Veneer.....	134	135	66	231	644	477	280
Fuelwood.....	—	—	—	24	116	—	485
G.V.P. ^a	40	40	32	39	34	80	87
Canada's Gross National Product — all final goods and services.....	—	5,294	4,345	11,850	26,769	505	225
Some indicators of volume of output							
Pulp and paper							
Total pulp.....	2,773	3,230	3,868	5,601	10,151	314	181
Newsprint.....	1,537	1,889	2,765	3,324	6,196	328	186
Lumber industry — sawn lumber.....	3,889	4,185	2,973	4,514	7,920	189	175
Veneer and plywood							
Veneer 1/10" base.....	—	—	—	186	643	—	346
Plywood 1/4" base.....	—	—	—	321	1,160	—	—
Fuelwood.....	9,159	9,279	8,791	7,587	3,623	39	48
Canada's Gross National Product — all final goods and services.....	—	7,670	7,619	15,413	21,573	281	140

^a Gross value of production.

Source: Based on data produced by Industry and Merchandising Division, Dominion Bureau of Statistics, see various issues of *General Review of the Manufacturing Industries of Canada*. The Gross National Product figures are revised figures contained in Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 7.

The pattern of development of Canada's forest industries over the past several decades is summarized in Table 10.1. This shows that the output of the forest industries has grown more rapidly than the average of all economic activities in Canada during the past three decades, primarily because of the rapid growth of the pulp and paper industry. Is this growth likely to continue over the next twenty-five years? We believe that there can and will be a considerable increase in the absolute levels of production of the forest products industries, but that the growth may be somewhat slower relatively than it has been in the past. The reasons for this conclusion emerge most easily from a consideration of the various segments of the industry group. The discussion which follows is based on the study prepared for us on *The Outlook for the Canadian Forest Industries*.³

The Lumber Industry

We shall begin with the lumber or sawmilling industry, one of Canada's oldest manufacturing operations but still one of its largest. In output, sawmilling still ranks within the leading ten manufacturing industries; in employment it rivals the pulp and paper industry. It is an industry made up of more than 8,000 mills, many of which are very small, but some of which are extremely large, as shown in Table 10.2. Sawmilling is an activity carried on in every province, but the large integrated operations are concentrated in British Columbia.

Table 10.2

SAWMILLS CLASSIFIED BY SIZE OF ANNUAL PRODUCTION, 1953

Size class production in m.f.b.m.	Number of mills	Percentage of number	Percentage of production
Under 200.....	4,197	52.8	4.2
200- 499.....	1,516	19.1	5.9
500- 999.....	934	11.7	9.0
1,000- 4,999.....	1,112	14.0	31.9
5,000-14,999.....	141	1.8	15.5
15,000-19,999.....	19	.2	4.5
20,000-and over.....	36	.4	29.0
Sub-total.....	7,955	100.0	100.0
Specialty mills.....	239		
Total.....	8,194		

NOTE: It is estimated that there were, in 1953, more than 1,000 additional small mills which did not report their production.

a Thousands of feetboard measure per year.

SOURCE: *The Outlook for the Canadian Forest Industries*, 1957, a study prepared by the Commission's forestry study group, Chap. 4, Table 10, p. 31.

Transportation costs are of critical importance in determining the location of lumber mills and the market areas which they serve. The costs of transporting trees as such or as large logs are high, unless a water network can be used to float logs to a mill as in British Columbia; thus milling will only be economical in much of Canada when it is carried on

in close proximity to the trees. The finished product, lumber, is itself bulky and of low unit value and therefore expensive to transport. Thus timber resources which are not outstanding in a physical sense but which are close to markets will be exploited. The markets themselves are spread out geographically; every little hamlet and every farm requires lumber from time to time. Isolated pockets of timber resources and dispersed markets for lumber explain the large number of small local establishments in the industry.

There are important exceptions to this localized structure of the lumber industry. Limited resources of timber of lumber quality and the population and industrial concentrations in Ontario and Quebec make these provinces lumber "deficit" areas which "import" wood from both the West and the East. The Prairies also are importers. There is therefore some long-distance movement of lumber within Canada. On the West Coast the huge logs can be transported cheaply by water and the industry there has evolved toward large mills located on tidewater on the south mainland coast or on Vancouver Island closer to the domestic and export markets they serve. These large mills also make integration feasible: there is a sufficient quantity of mill waste to justify by-product operations or the sale — and sometimes export — of what would otherwise be waste material. And this fuller use or sale of the raw logs itself helps support the large-scale operation. In the East, integration is much less common and where it does occur, the production of lumber is likely to be the subsidiary operation. The required scale of operations is achieved in pulp and paper manufacture and, in effect, the pulp mill sometimes becomes a collection point for the raw materials of a lumbering operation.

In general, we would not expect the structure of this industry to change much in years to come: because of the factors mentioned, the typical mill will probably remain small. There is little prospect that the industry as a whole will be able to achieve production economies associated with an increasing scale of mill operations. Scope for use of automatic techniques appears to be limited and productivity gains are likely to be small.

There has been a long-run increase in the relative price of lumber, compared with other structural materials. This is partly because of the limited increase in productivity in the lumbering industry, compared with other industries; in turn the limited increase in productivity reflects the technical difficulties of applying capital-intensive mass-production techniques and the small scale of many of the mill operations. In order to retain labour, the lumbering industries must nevertheless match increases in wage rates in alternative occupations. Insofar as lumber prices will be influenced by these factors in the future, it appears likely that the relative price of lumber will continue to increase compared with other products.

These prospects regarding costs do not apply to the same extent to lumber operations on the West Coast. There the larger scale of operations provides more scope for mechanization designed to raise productivity; this along with the use of wastes from lumbering in the manufacture of other products, can offset, at least partly, the rising trend of lumbering costs. These mills — and the larger eastern ones as well — should expand production relative to the industry as a whole. However, even for these mills productivity gains are unlikely to match those in such competing industries as iron and steel and aluminum (although the pulp and paper side of the West Coast forest product operations partly offsets this situation). Here we return to the basic characteristics of sawmilling and its raw material. The simplicity of the manufacturing process itself limits the scope for production economies. It was this simplicity which gave lumber an early start as a low-cost industrial raw material but the advance of technology in other fields has tended to reduce this initial advantage and is likely to continue to do so. Secondly, sawlogs, the raw material, are not uniform. There will be variations of species, size and quality; and varied defects such as knots, rot, pitch and stain. Lumber is produced in a wide range of sizes and grades. Sawlogs must be examined, graded and routed; and so must sawn timber on its way to further processing. Automatic handling and control techniques cannot readily be applied to these tasks.

In summary, we conclude that lumber prices will rise relatively in the future, or what is the same thing, that supply will respond to expanding demand at rising costs, thus inhibiting the expansion of the quantity demanded. In these circumstances, by how much will lumber needs increase? The answer will depend on the long-term price elasticities of demand and supply. There are four main uses for the output of sawmills: in construction, principally residential; in the manufacture of such things as furniture and toys; in the crating and packaging fields; and in a special use, railway ties. Taken together, these uses cover a broad range of economic activities, many of which will increase rapidly with general economic expansion. But what role may lumber attain in these various activities in the future? Lumber has lost ground to competing materials over the past quarter century as is shown in Table 10.3. This has been largely due to changes in the prices for lumber and for such other materials respectively, but other factors have also been important. In many uses competing materials seem far superior. And the complexity, precision and scale of modern industrial requirements have rendered lumber unsuitable in some former applications. Non-uniformity, inflammability and poor weathering qualities are obvious disadvantages and they have been heightened by progress in competing materials.

But there are also bright sides to the prospects for this industry. If some of the advantages which lumber enjoyed have narrowed or dis-

Table 10.3

**PERCENTAGE INCREASES FOR LUMBER
ECONOMIC ACTIVITY AND COMPETING MATERIALS**
(annual averages 1926-30 versus 1950-54)

	1926-30	1950-54	Per cent increase
Apparent consumption of lumber in Canada — million f.b.m.	2,483	3,555	43.2
G.N.P.—millions of constant 1949 dollars.	8,453	19,086	125.8
Value of new construction expenditures — millions of 1949 constant dollars.	1,279	2,555	99.8
Domestic consumption of portland cement — thousand barrels.	10,430	21,636	107.4
Value of production of structural materials — thousands of constant 1949 dollars.	63,244	140,420	122.0
Exports of lumber from Canada—million f.b.m. ...	1,988	3,557	78.9

SOURCE: Based on data presented by the Forestry Branch, Department of Northern Affairs and Natural Resources and on the revised Gross National Product figures in Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy*, 1957, a study for the Commission.

appeared, there are some it retains: natural beauty, easy workability, good “strength for weight” properties, all are inherent. There have been a number of technical developments such as lamination and bonding which adapt lumber to modern needs; treatments have been developed which improve the resistance of wood to weather and fire.

In recent years, about 30 per cent of Canadian lumber output has gone to the United States and something under 10 per cent to the United Kingdom. Many of the same considerations as we have just discussed apply in these important markets but from the studies which were prepared for us, and from other studies,⁴ we judge that export volume should hold up well. For the Canadian industry in its international setting, good quality and availability of resources are important assets; relative to foreign lumber sources, its competitive position is strong.

In the continuing contest for position as an industrial material, lumber has its own advantages; the past records indicate a continued growth in lumber consumption with growing population. For example, since the 1920's, the basic trend in annual per capita lumber consumption in Canada has been essentially constant: it was 252 board feet in 1926-30 and 248 board feet in 1950-54. We expect the going to be a little harder in the years ahead. Because of more intense competitive pressure from other materials and the prospect of rising “real” lumber prices, the domestic per capita use of lumber might fall by as much as 10 per cent by 1980. If so, this would mean aggregate Canadian requirements of 5.8 billion board feet, as against an average of 3.7 billion board feet for the 1952-54 period. Similar trends seem in prospect for exports and, in all, we foresee

perhaps a 60 per cent expansion of output by 1980. At that time, production might therefore reach almost 12 billion board feet.

Pulp and Paper

When we turn to pulp and paper, the largest of the forest industries, we find an industry which contrasts in many ways with sawmilling. Though its origins can be traced back almost 150 years, most of its growth has occurred in this century. The mills of the Canadian industry are typically large scale and number only about 130 in all. Commonly, plant and equipment for one such mill represents an investment exceeding \$50 million; a single newsprint machine might cost \$8 million. Like sawmilling, however, pulp and paper is heavily committed in export markets: out of total production valued at nearly \$1.3 billion in 1955,⁵ exports totalled almost \$1 billion. The main lines of the industry's product structure can be summarized as follows:

Table 10.4

PULP AND PAPER PRODUCTION AND EXPORTS, 1955

	Production	Exports	Per cent exports
	1955—millions of dollars		
Newsprint.....	688	666	96.8
Market pulp ^a	297	297	100.0
Other paper grades.....	293	28	9.6
Total.....	1,278	991	77.5

a See following text.

SOURCE: *The Outlook for the Canadian Forest Industries, 1957*, a study prepared by the Commission's forestry study group; and Dominion Bureau of Statistics, *The Pulp and Paper Industry 1955*, Table E, p. H-12

Not all of the market pulp manufactured in Canada is exported — as is shown above — but in order to avoid a double count in the output of the industry, we have excluded the relatively small amount, valued at about \$20 million, which was sold to Canadian mills. The predominance of newsprint and the importance of newsprint exports are the striking features of the table. This is truly a large-scale enterprise: Canadian mills account for almost one-half of world newsprint production of some 13 million tons; they account for almost four-fifths of the newsprint which moves in world trade and they supply roughly three-quarters of United States needs, now running at nearly seven million tons annually.

The production of newsprint might be described as follows: the raw material, pulpwood, enters the mill to be ground, or chipped and cooked, combined with water, conveyed to the paper machine where the water is removed by pressing and drying, then cut to width and rolled ready for shipment. There is, of course, rather more to the process than this, but one is impressed nevertheless by its clean and uncomplicated nature. Faced

by a bank of four paper machines, each about 300 feet long and rolling out a 20-foot width of newsprint at perhaps 20 miles per hour, one gets unmistakably the notion of efficiency and simplicity. It is a simplicity which in some respects is the envy of those producing other grades of pulp products. Currently, the Canadian pulp and paper industry annually produces 6.5 million tons of a single, essentially uniform commodity, standard newsprint paper. In the other segments of the industry there are hundreds of distinctly different grades of paper and paperboard. For these grades, production runs are short, punctuated by washdowns of machines and changes in the pulp mixture as required by the new specifications. The difference between the two segments is largely dictated by the markets they serve; as indicated in Table 10.4, producers of the so-called other paper grades sell 90 per cent of their output in Canada, being confined to the domestic market mainly by the effect of foreign tariffs.

During our hearings we inquired into the competitive position in world markets for Canadian production of fine and coarse papers and paperboard because such products appear to be well adapted to Canada's resources. But Canadian exports of such commodities are restricted by foreign tariffs. Because of this, the Canadian producers of fine and coarse papers and paperboard claimed they need tariff protection in return. This is not a matter of comparative efficiency. The domestic market is too small to yield the economies which come with specialization, while competing American mills supplying the large — and protected — United States market are in a position to specialize. We were informed that Canadian mills could probably hold their own in competition if they enjoyed free and equal access to the North American market and were assured that such an arrangement would be permanent. But free access to the United States market does not seem to be a likely prospect.

The past record of growth and the prospects for production of various classes of pulp and paper products are summarized in Table 10.5.

In the past the Canadian output of other paper grades has expanded more rapidly than newsprint, mainly reflecting the rapid growth in consumption of fine and coarse papers and paperboard in Canada.

What is the basis of the projections set out in Table 10.5? Consider newsprint first. In 1956 about 5.25 million tons, or 80 per cent of our output was shipped to the United States. By 1980 shipments to that country might reach about 7.6 million tons, but this would represent a gain of only about 45 per cent. There are two reasons for this rather modest forecast of growth. First, the use of newsprint in the United States is already at a very high level; the American newspaper industry, which accounts for perhaps 90 per cent of the consumption, is healthy but it is past the first blush of youth. In advertising, it must compete against other giant media — magazines, radio and television; in circulation, it must

Table 10.5

PULP AND PAPER OUTPUT TRENDS BY MAIN GRADES
ANNUAL AVERAGES 1926-30 AND 1950-54;
PROJECTED 1980
(thousands of tons)

	1926-30	1950-54	Per cent increase	1980	Per cent increase
Newsprint.....	2,322	5,669	147	12,500	120
Other paper grades.....	420	1,584	277	4,107	159
Market pulp					
Exports.....	868	2,032	134	4,880	140
Non-paper pulp used in Canada	n.a.	48	—	165	244
All grades.....	—	9,333	—	21,652	131
G.N.P. in millions of (1949) constant \$.....	8,453	19,086	127	61,800	223

SOURCE: Prepared from data in *The Outlook for the Canadian Forest Industries*, 1957, a study prepared by the Commission's forestry study group. See Table 59, p. 140; Table 60, p. 142; Table 98, p. 250; and Table 99, p. 252

compete against these same media; and the newspaper's claim for readers' time is limited by alternative claimants as diverse as the automobile, the golf course and the home workshop. In these circumstances, newspapers will do well to hold their present place and the forecasts prepared for us anticipate only a minor increase in per capita consumption of newsprint. Compared to 1956 United States newsprint use per person is expected to increase by slightly less than 12 per cent by 1980, and aggregate use by 52 per cent. The latter is a larger gain than is expected for Canadian exports to the United States. The difference lies in a probable relative increase in United States supply of newsprint from domestic sources, and this is the second critical point in the forecasts. In 1950, American consumers obtained 17 per cent of their newsprint supply from home mills; in 1956, 22 per cent. In tonnage, the increase from domestic sources amounted to over 600,000 tons per annum. We are told that there are several reasons for this. A technological advance is one: it is only quite recently that newsprint of satisfactory quality could be made from southern pine. The first mill in the Southern United States began operations in 1940, but some 700,000 tons of annual capacity have been added there since the War. Still more recently a new mill began operations in the Northeastern United States using a new process to produce newsprint from hardwoods. Assistance in the form of special depreciation provisions figured in most of these increases. Another factor has been the industrial growth in the South, which opened up new plant locations and which, through population growth, has brought a burgeoning regional market for local production.

Having the requisite technology, resources and market, a development of this kind is inevitable and it is felt that it will continue for a time, until the effects of rapid increase in the costs of labour and wood

narrow or eliminate the advantages of the recent past. The opinion of the Canadian industry is that by 1960 the effects of the special tax assistance should be at an end and that this, along with expected trends of costs in the South, should restore the competitive position of Canadian mills. Beyond 1960, the proportion of expanding United States needs that will be supplied from Canada is expected to be stable, at about 75 per cent. Implicit in this projection is the assumption that Canadian mills can compete effectively with new domestic United States production in regions other than the South. There is a possibility of increasing production of newsprint based on hardwoods in the Northeastern United States but the technology which makes this feasible is also available to mills in Canada. The future of our forest industries is sensitive to the external competitive situation;⁶ thus, special importance is attached to the need for competitive efficiency in our domestic mills if their market share is in fact to be maintained.

This point applies equally to newsprint exports overseas, though the prospective growth in demand is greater than in the United States and newsprint resources are more limited overseas. Excluding Canada and the United States, world newsprint requirements might rise by almost 9 million tons by 1980, equivalent to almost a 150 per cent gain over 1955 levels. Production in the same geographical area — which we shall designate simply as "Overseas" — might increase by only about 5.4 million tons, suggesting that North American exports to overseas areas must rise by 3.2 million tons to close the gap. In 1955 these exports totalled just under one million tons. Overseas import requirements from Canada alone might reach 3.8 million tons by 1980, against 725,000 tons in 1955. This is a very large gain but the overseas demand potential is also large. Some sense of the magnitudes involved can be gained from per capita figures: in Canada, the per capita use of newsprint is now 60 pounds annually; the average level for the overseas countries as a whole is five pounds. If the suggested trends are realized, the average level abroad would by 1980 be brought to a level of just eight pounds of newsprint per person. This modest level of newsprint consumption together with the expected growth in population imply phenomenal increases in demand for newsprint. It might be added that requirements here in Canada are expected to roughly double with increasing population, and may rise to about 72 pounds in per capita consumption.

The third major segment of the pulp and paper industry is market pulp, a term which itself requires clarification. In 1955 the Canadian industry produced just over 10 million tons of wood pulp, exporting about 2.4 million tons and utilizing the balance for further conversion in domestic paper and paperboard mills. The exports represent direct sales of pulp to convertors abroad. Projected sales of such products were prepared for us, and are reproduced here in Table 10.5. The other item under the

market pulp heading — non-paper pulp used in Canada — refers to what is technically known as “dissolving and special Alpha grades” of pulp, used in the manufacture of such things as rayon, plastics and explosives. As has been mentioned, we have not treated separately the relatively small volume of paper pulps marketed in Canada. The trend of sales for these pulps is included in the projections for paper and paperboard.

Many of the observations and comments on newsprint are applicable to pulp exports. Production of both in Canada is typically large scale and efficient; both are heavily dependent on the export trade and move in a free trade environment. For each the principal market is in the United States; the largest other external sales are to the United Kingdom. Market pulp is certainly not less sensitive than newsprint to the myriad forces which push and pull at the pattern of our trade. One recent study of the United States pulp and paper outlook⁷ foresaw virtually a doubling of pulp production in that country to almost 40 million tons annually over the next quarter century. If this projection is adopted, the indications are that our exports to the United States will also about double — to 3.7 million tons. Though Canadian mills are the major, and sometimes the sole, source of supply in individual instances, their position in the aggregate is thus not large in relation to total United States needs.

In overseas markets, the two elements — a huge demand potential and relatively limited resources — encourage the prospects for growth in Canadian exports of wood pulp. An expansion in the order of 700,000 tons, or 140 per cent, is contemplated. In its submission to us, however, the Canadian Pulp and Paper Association suggested that a much larger expansion could conceivably occur.⁸ The Association pointed out that it would be in line with recent estimates prepared by the Food and Agriculture Organization (F.A.O.) and the Organization for European Economic Co-operation (O.E.E.C.) for European paper consumption to reach 20 million tons by 1980 while prospective pulp supply might total just over 14 million tons. Part of this deficit will be made up in the form of paper imports but an increase of about 600,000 tons in pulp imports from Canada has been included in our projections. But, while not included in its forecasts, the Association suggested that additional market pulp imports in the order of two million tons might be needed if the 20-million-ton level of European consumption is to be reached.

Thus, for both newsprint and market pulp an important contribution to the expansion prospects for Canadian output is expected to come from the growth of overseas requirements. Obviously, however, these requirements must become effective; that is, they must be backed by the ability to buy in this country. We indicated in Chapter 4 that world trade will continue to feel the hampering effects of restrictive commercial policy and monetary restraints, but it may well be that our exports of industrial

materials will be much less limited by such restraints than our exports of highly manufactured goods.

Other Forest Industries

We propose to comment only briefly on the various sub-industries which remain. They are listed along with estimates of current production and projected output in Table 10.6. For these commodities, the prospects run the whole range from absolute declines in output to rates of growth which are among the fastest in the entire forestry group. However, they account for a relatively small part of total wood use: in 1954, collectively they took only 20 per cent; individually, none took more than 10 per cent.

Table 10.6

CURRENT^a ANNUAL PRODUCTION AND PROJECTED 1980 OUTPUT OF OTHER FOREST PRODUCTS

	Current ^a	Est. 1980	Per cent change
Shingles — 000 squares.....	2,774(i)	2,774	—
Plywood — m. sq. ft.: 1/4".....	762(ii)	2,420	208
Insulation board — m. sq. ft.: 1/2".....	268(ii)	600	124
Hard board — m. sq. ft.: 1/8".....	147(ii)	490	206
Veneers — m. sq. ft.: 1/10".....	484(ii)	819	70
Pulpwood exports 000 cords.....	2,233(i)	1,750	— 22
Fuelwood 000 cords.....	5,300(iii)	2,500	— 53
Other products ^b m. cu. ft.....	75(iii)	80	7

a "Current" refers to (i) 1950-54 average;
(ii) 1952-54 average;
(iii) 1954

b Poles, piling, fence posts and rails, round mining timber, distillation wood and hewn ties.

SOURCE: *The Outlook for the Canadian Forest Industries, 1957*, a study prepared by the Commission's forestry study group, Chap. 4.

The decline in production of fuelwood is, of course, not surprising. Studies of prospective fuel requirements prepared for us anticipate a marked substitution for wood by competing fuels and energy sources: in general the latter offer greater convenience and cleanliness, and will in future be more widely distributed among consumers. By 1950 the production of fuelwood from farm wood lots — the main source — was only half of the rate in 1940.

For pulpwood exports, the long-term future trend will reflect the resolution of two major forces: on the one hand continued demand from abroad for such products but, conversely, growing domestic requirements for pulpwood associated with the expansion of pulp and paper output. Moreover, Ontario, New Brunswick and British Columbia are the principal sources for present exports of pulpwood; the first two of these provinces already have statutory measures that restrict the export of

wood in raw form. The volume of pulpwood exports tends to swing widely from year to year; much of it goes to meet incremental needs and it is therefore subject to the pull of peak demands at home and abroad. The average level of pulpwood exports is expected to be about 25 per cent less by 1980 than in recent years.

The plywoods, composition boards and veneers might be regarded as latter-day offshoots of sawmilling; they are that industry's answer to modern industrial demands for uniformity and convenience in use or installation. The use of such products has grown extremely rapidly in recent years; Canadian consumption of plywood and building boards rose by over 50 per cent between 1949 and 1954. We do not expect this pace to be maintained. The rapid increase in output of these products was partly the lusty growth from infancy of these industries; partly, it reflects the unusual vigour of Canadian construction activity in recent years and, partly, an emergence of "do-it-yourself" activities. The short record of experience makes it difficult to gauge the future demand for these commodities. We would feel, however, while accepting the forecasts made for us, that they might well prove to be conservative. It will be noticed, incidentally, that the estimates for expansion in output of hardwood, plywoods and veneers are relatively moderate. This stems from a rather serious resource supply problem. Travelling through many of the forested areas of Eastern Canada, one sees repeatedly the defoliated limbs and trunks of yellow birches interspersed through the stands. This is the effect of the birch dieback, which has severely afflicted Canadian yellow birch trees during the past two or three decades. While precise knowledge of the extent of the damage is not available, many hold the belief that this will be a serious limiting factor to increased production of birch plywood in the years ahead.

The Supply Situation

Does Canada possess the forests capable of meeting the projected increases in output of wood products? The requirements of wood to meet the various projected productions of forest products have been estimated for us, and are found in Table 10.7.

Based on these estimates, to meet the 1980 requirements of the wood-using industries the annual cut of wood will have to be 58 per cent larger than it was in 1954. These estimates include a sizable allowance for increased use of mill leftovers — waste material — in the production of pulp and paper. We are told that at the projected level of lumber, plywood and veneer output, as much as six million to eight million cords of usable material would result as waste. About half of this, it is assumed, might be economically available to pulp and paper production and as a source of fuelwood.

Data contained in *The Outlook for the Canadian Forest Industries* showed the apparent adequacy of the forest resources to meet these de-

Table 10.7

ANNUAL WOOD REQUIREMENTS — 1954 AND 1980 (estimated)

	Quantities		Equivalent in millions of cubic feet of merchantable timber	
	1954	1980	1954	1980
Pulp and paper requirements				
000 cords.....	13,677	28,000		
of which: Pulpwood.....	12,982	25,000	1,100	2,120
Mill leftovers.....	695	3,000		
Lumber and other sawn products:				
m.f.b.m.....	7,317	11,400	1,400	2,220
Softwood plywood & veneer m.f.b.m.....	235	700	40	130
Hardwood plywood & veneer m.f.b.m.....	93	150	20	30
Pulpwood exports 000 rough cords.....	1,861	1,750	160	150
Fuelwood:				
Roundwood—000.....	3,918	2,000	310	160
Mill leftovers—000 cords.....	1,300	500		
Miscellaneous products				
Produced in Canada.....			50	55
Exports of misc.....				
Roundwood.....			25	25
Total.....			3,105	4,890

SOURCE: *The Outlook for the Canadian Forest Industries, 1957*, a study prepared by the Commission's forestry study group, Table 62, p. 151.

mands. In terms of national aggregates it was shown, for example, that the 1954 wood cut was equivalent to 61 per cent of the "possible cut" — that is, gross annual growth — of softwoods, and equivalent to only 19 per cent for hardwoods. For all species the total cut of 3.1 billion cubic feet was just under 50 per cent of the possible cut. The total drain on our forests was somewhat more than this. Estimated fire losses have averaged some 183 million cubic feet in recent years; however, this estimate is known to be incomplete since it includes mainly the areas now under protection; actual losses might have been twice as great. From the Forest Biology Division of the Federal Department of Agriculture the Commission was given a figure of 900 million cubic feet of wood as being the estimated annual loss due to disease and insects. Together these losses added about a third to utilization and brought the total drain to about two-thirds of the possible cut.

From these estimates it is evident that, had we been able to use the full possible cut — to achieve the theoretical ideal of "complete utilization" — demands upon our forests twice as great as those experienced could have been met without impairment to the forest capital. Allowing for losses due to fire, disease and insects, the actual cut could have been increased by 50 per cent, compared with anticipated increases in annual

wood requirements by 1980 of 58 per cent. However, looking ahead twenty-five years, other factors affecting the wood supply situation can be taken into account. With more extensive fire protection and intensified control of insects and diseases, forest losses might be halved; improved management practices can be expected to increase yields considerably. In addition, there exists on presently inaccessible forest lands a reserve of timber which could potentially yield an annual crop about one-third as large as the possible cut from presently accessible areas. These relationships are drawn together in Table 10.8 which sets forth one possible pattern of growth and use of wood by 1980. It is apparent from these estimates that in the purely physical sense Canadian forest resources are more than adequate to meet the expansion of wood requirements.

We must emphasize here, however, the nature and magnitude of the resources we have been considering. They are spread over thousands upon thousands of square miles, much of the territory being remote, much of it virgin. Thus, in referring to the possible cut, the term "estimate" is used advisedly. Provincial authorities, mostly by sampling techniques, have made an inventory of only two-thirds of the commercially productive forest area. Considering the areas involved, this is an important achievement but much surveying of forest resources remains to be done. Knowledge of the productivity of our forests is fragmentary. The existing estimates need verification by more intensive surveys and these may fill gaps in our information on species, rates of growth, and losses due to fire and disease. Though our knowledge of available forests is limited, we believe that it is sufficiently accurate to support the conclusion of adequate resources to meet substantially higher output in the future. But as regards species or sizes — yellow birch has been mentioned; Douglas fir and veneer logs could be added — the uncertainty of our detailed knowledge constitutes a qualification.

The reassuring prospects indicated by the use of aggregates is deceptive in other respects. Fire losses can be used in illustration. One might feel rather complacent about the fact that losses due to fire represented less than 5 per cent of the total drain but the full implications are much more serious. As mentioned earlier, the figure covers only reported losses and these are most likely to have occurred in the accessible regions. In more specific terms: the real loss involved in the destruction by fire of, say, a healthy stand of spruce in a good location is far greater than mere statistics indicate. Nor is the timber loss the full extent of the damage: there may be a loss of wildlife and of recreational value; the control of water run-offs may be impaired; and where the burn is serious or repeated, permanent damage may be done to the soil.

We are in full accord with representations made to us stressing the importance of efforts at fire protection. These might take several forms, spearheaded by sound and sustained public education on the subject.

Table 10.8

ALLOWABLE CUT vs. ESTIMATED DEPLETION, 1980
(in millions of cubic feet)

Group	Allowable Cut			Depletion			Percentage of adjusted allowable cut
	Accessible	Potentially accessible	Total	Adjusted ^a	Roundwood requirements	Losses	
Atlantic							
Softwoods.....	567	143	710	820			
Hardwoods.....	195	2	197	230			
Total.....	762	145	907	1,050	500	47	547
Central							
Softwoods.....	1,778	706	2,484	2,700			
Hardwoods.....	1,003	127	1,130	1,320			
Total.....	2,781	833	3,614	4,020	2,250	217	2,467
Prairies and North							
Softwoods.....	797	487	1,284	1,390			
Hardwoods.....	696	293	989	1,050			
Total.....	1,493	780	2,273	2,440	500	159	659
British Columbia							
Softwoods.....	1,347	422	1,769	1,940			
Hardwoods.....	41	17	58	60			
Total.....	1,388	439	1,827	2,000	1,650	74	1,724
All Groups							
Softwoods.....	4,489	1,758	6,247	6,850	4,370		
Hardwoods.....	1,935	439	2,374	2,660	530		
Total, Canada.....	6,424	2,197	8,621	9,510	4,900	497	5,397
							57

^a The data on adjusted allowable cut include provision for higher yields estimated to be achievable within 25 years. These allowances are based on conservative assumptions as to the improved yield potentials only from the forest areas of highest productivity.

SOURCE: *The Outlook for the Canadian Forest Industries*, 1957, a study prepared by the Commission's forestry study group, Table 73, p. 183.

Effective fire control implies many things: active research in methods and in the development of equipment; the extension of information; and access by increased communication and road facilities. It was suggested to us that a new research organization on forest fires be formed under the auspices of the various organizations interested in the forest resources but independent of governmental agencies. Another suggestion is that military personnel might be trained to act as firefighters in cases of emergency, as is done in some other countries. We wish to stress the desirability of co-operation among all interested agencies and authorities. As provided for in the Canada Forest Act, the Federal Government can render valuable assistance in the field through financial assistance to fire protection programmes. The causes of fires — natural and human — being what they are, we doubt if the numerical incidence of fires can be drastically reduced but we feel that efforts along the lines indicated above could reduce the losses by perhaps one-half of the present levels.

Many of the same comments apply equally to insect and disease infestations. The actual and potential losses are much greater than is conveyed by the single statistic reporting estimated current damage. Vigorous co-operative action on a broad scale is needed; though with much less drama than surrounds a forest fire, a major infestation may gradually pervade whole regions inflicting epidemic losses to the mature stands, perhaps even threatening a particular species of tree with extinction. Regeneration can be interrupted or retarded for decades. The spruce budworm damage in New Brunswick and Eastern Quebec is an example of the scope of such things; happily, it is now also an example of effective co-operative action between private industry and all levels of government to bring the menace under control.

We have been discussing the physical aspect of Canada's resource position in forests, pointing out some of the reservations required in interpreting Canada's forestry prospects. However, in the long run it is the economic aspect of our supply position, which will determine how these prospects will materialize. For example, we have heard it suggested that Canada has a unique wealth of resources in the world wood-fibre economy. Such is not the case. Table 10.1, it will be recalled, showed the predominance of lumber, newsprint and wood pulp among our forest industries. This pattern of development does not fully reflect the structure of world demand for wood products: as a case in point the United States uses some 14 million tons of paperboard annually and about 7 million tons of newsprint. Virtually all of the former is supplied from domestic resources while Canada supplies about 75 per cent of the latter.

The fact is, of course, that our advantages — where they exist at all — are relative, not absolute. Moreover, they are relative in a situation which is constantly changing. Advances in the technology of converting a wide range of fibrous materials into paper products are now well known.

Over the past 25 years, commercial operations have been started, using temperate and tropical hardwoods, bamboo and sugar cane waste, to name only a few such materials.

Other factors affect our advantages. The growth of a market itself may justify domestic production at some point. Industrialization may bring transportation or power facilities where none existed before. Something as simple as the stroke of a pen on a tariff regulation or as complicated as the stirrings of nationalism may close a market to our products. All this is not to suggest a prospect of peril and uncertainty; as they have in the past, our forest industries can take advantage of technical changes. Though we might foresee on the one hand a huge demand potential and, on the other, conclude that our resources are ample, it might not follow that Canada's forest industries would participate fully in the growth to come. We might call the required additional ingredient "competitive efficiency"; it will be the result of vigorous fundamental and applied research at all levels of operation, from basic studies of plant ecology to analysis of consumer preference in the marketplace.

The logical starting point for such research activities is at the source of the raw material and comes under the heading of "forest management". Stated most simply, it is the object of such management to increase yields in the best and most accessible locations, thus to make possible more intensive operations without impairment of — indeed, with improvements to — the preferred stands. The advantages are obvious: reduction of the onerous transportation costs associated with long hauls and reduction of high labour costs associated with high labour turnover and low productivity. Year-round logging from permanent campsites or townsites and increased mechanization are the means toward these ends. Control and reduction of forest losses, already referred to, are also a vital part of the management function. Encouragement should be given to tree farming. The farm woodlot generally has the advantages of good location and in addition has a ready labour supply in the farmers themselves. We are not yet at the stage in Canada where we can say simply, "All our forests should be brought under management". The areas involved are too large and much of the area is too remote; the cost burden too high. In order to obtain ample returns for the costs involved, intensive management should be concentrated on the proximate forest areas; in the more remote areas, the emphasis should be on protection with preservation as the primary objective.

As our country grows and the demands upon its forests increase, the problems of economic inaccessibility of remote stands will lessen. To go to the Peace River District for pulpwood is as yet uneconomic; to go there also for minerals and power may transform the prospects. Technology, too, is working to reduce the effects of distance. The truck and tractor were the pioneers in mechanization. The power saw followed but we are told that it might be on the way to displacement in 15 or 20 years by

the use of equipment designed for "whole-tree logging". This would open up a whole new set of possibilities: entire trees would be brought to collection points where machines would remove the limbs and bark, perhaps also performing the preliminary sorting and cutting operations on the peeled logs. In what it called "an exercise of the imagination" the Canadian Pulp and Paper Association, in its brief, discussed these and other revolutionary developments: the use of mobile atomic-power reactors and compact high-speed chemical pulping equipment could free the mills from dependence on large hydro-electric installations, and permit operations to move closer to the forest sources. Perhaps such innovations are imaginative but the technical rudiments have already been worked out. And in essence, the objectives are simple: to increase productivity and to minimize at each stage of the total process the distances over which bulky waste materials are transported.

We should like to be able to add without qualification that these problems are being attacked from another direction — through full utilization of the waste. Much has in fact been done in this regard. On the West Coast, particularly, there are integrated pulp mills which now subsist solely on sawmill waste; some of the waste is also converted to other commodities for shipment to domestic and export markets. But waste does not exist in just those proportions or places which match product demand. The bulk and low unit value of slash, limbs or tree tops limits the distances over which they can be moved for processing. And, considering a higher stage of manufacture, some 50 per cent of the raw material is lost in the waste liquor effluent from sulphite pulping. This waste has been referred to as "a rich storehouse of chemicals". Technically, so it is; but with present knowledge — and foreign tariffs on imports of chemicals — domestic demand imposes modest limits on the extent to which the storehouse can yet be tapped.

Nevertheless, increased utilization of the raw material and greater by-product diversification are in the shape of things to come. The benefits could be very substantial. To maximize the value realized from a given piece of wood is to reduce the share of the cost of the wood which each product must bear. The scope for mechanization will probably be increased. With diversification often comes greater stability of production, as fluctuations in the demand for various products may be differently timed. The point we would stress, however, is that it is not a matter of waiting until demand catches up with potential by-product supply but, rather, of undertaking research to develop new uses and new products.

We seem now to have come full circle, back to market demand. In setting forth the prospects as we see them for the forest industries we have not come upon evidence of crippling problems, nor did we come upon them in the course of our hearings. But neither are the prospects for the individual industries uniformly buoyant. Growth rates will vary,

some impeded by tariff barriers abroad, some accelerated by the strength of foreign demand; for some there will be encroachment from competing products, but some will make inroads on the markets for other materials. In the aggregate, we do not expect the forest industries fully to match the growth of the economy. The forecasts we have used compare with the general economic prospects roughly as follows: in 1955 the forestry group accounted for over 10 per cent of the output of all commodities and about 5 per cent of total domestic output of commodities and services combined; our forecasts would result in 1980 proportions of 8 per cent and 4 per cent respectively. Similarly in labour requirements, we expect the proportion of total Canadian employment provided by the forest industries to fall from just over 5 per cent to just under 4 per cent. Even so, the growth which has been projected is substantial enough when one considers that such youthful new industries as iron ore and natural gas will experience very rapid growth rates which weigh heavily in the overall prospects. But we must add one final qualification. The performance of the forest industries, as we have already stressed, will be largely determined by their competitive efficiency.

MINING AND MINERAL PROCESSING

MINING AND MINERAL processing constitute a major component of that group of activities which for the purposes of this report we have classified as the resource and primary manufacturing industries, the others being the energy, fishing, and forest industries. Having treated oil and gas production and coal mining under the heading of energy, we have used the category of mining and mineral processing to include all other Canadian mining operations — for metals like iron, copper or lead, for industrial minerals like asbestos, gypsum, or potash, and for structural materials like cement, lime, or stone. Also included in this category are all the non-ferrous metals smelters and refineries which process Canadian or foreign ores into semi-finished and primary metals like aluminum, nickel, and zinc as well as those manufacturing plants which produce primary manufactures such as cement and abrasives.

Although the mining and mineral processing industry ranks somewhat behind the forestry and energy industries in its direct contribution to total domestic output, statistics alone do not show the important part it has played in recent Canadian economic development. Accounting in 1955 for just under 4 per cent of all domestic output and directly employing 110,000 persons — about 2 per cent of the labour force — the sector's output has grown by some three and one-half times in constant dollars since the late 1920's, while exports in real terms have grown fourfold to account for no less than a quarter of all Canadian commodity exports. Moreover, the stimulus this increased production has given to investment outlays both directly and indirectly through its requirements for new power, transport, manufacturing, housing and social capital facilities has been one of the main dynamics of our growth throughout the post-war period. Indeed, despite the increasing diversity and maturity of the Canadian economy, the high level of demand for our valuable mineral and other resources has been one of the principal reasons why the rate of our national expansion has outpaced that of most of the other economies of the free world since 1945.

Past Growth

The rise of mining and mineral processing to a significant position in the Canadian economy is comparatively recent, although sporadic mining activity based on essentially local markets and using elementary extractive

operations and primitive processing methods had been carried on since the early eighteenth century. In the period from 1875 to 1914 a large number of mineral discoveries were made and a number of processing operations started — a surprising percentage of the former in connection with railway construction and the search for precious metals. This is the period in which were made the discovery of asbestos at Thetford Mines, of the copper-nickel ores at Sudbury, of the Sullivan silver-lead-zinc mine in British Columbia, and of the cobalt, silver, and gold strikes of Ontario; the first smelting of aluminum at Shawinigan Falls began in this period also. However, prospecting methods were still very elementary and processing techniques had not been devised to take full advantage of those discoveries that had been made, with the result that mining and associated activities are estimated to have contributed less than 1 per cent to Canada's Gross National Product before the First World War. It was only after 1918 that mining's growth began in earnest, stimulated on the one hand by technological developments such as the selective flotation process, electrolytic refining, and new metallurgical processes and on the other hand by the sharp rise in the world demand for metals and minerals. Canada, with her readily accessible supplies of minerals was able to take full advantage of the growth in the world demand, which was of course intimately linked to rising expenditures on machinery, equipment, and consumer durables, particularly in North America. As a result, mining and mineral processing played a leading role in the economic expansion that occurred in the 1920's, doubling its share of national output and increasing its share of commodity exports to just under 10 per cent.

In the depression of the 1930's, the mining industry received a sharp setback, much more in the form of drastic reductions in price than in decreases in the volume of output and employment. (This was not true of the cement industry, which underwent a most pronounced decline.) However, with the revaluation of the price of gold in 1934 and the increase in demand for armaments, the industry as a whole fared better than most — real output in mining exceeded its 1929 level by 1934 and had almost doubled when the War broke out in 1939. Surprising as it may seem, mining production in 1944 and 1945 was considerably lower than in 1939, due to a decline in gold production and to general shortages of labour in the mines, although activity in the processing end of the industry expanded markedly, led by huge increases in the output of aluminum and cement.

The most significant development for the Canadian mining and processing industry in the last two decades has in fact been the revolutionary change in the United States mineral position; from being typically a net exporter of mine and mineral products that country is now over all a net importer of these materials. This changeover was hastened by the unusually rapid depletion of United States' reserves that accompanied the enormous mineral consumption of wartime, but the deficit increased more

or less steadily throughout the post-war period as a result of the growth of the American economy. That the rise in North American mineral consumption was a relatively rapid one was due in large measure to the increasing proportion of growing consumer incomes devoted to durables like automobiles, refrigerators and other appliances. It was also due to increasing mechanization and industrialization of all sectors of the Canadian and American economies, which in turn led to an increase in the proportion of national output devoted to investment in machinery and equipment. In addition, increases in construction expenditures of all kinds stimulated the production of cement and other structural materials for the domestic market. Much the same trends were operating in the world's other industrial economies, while the world demand for metals and minerals was further increased by the investment and development programmes of the underdeveloped countries of Africa and Asia. Superimposed upon what may be called these "normal" civilian requirements were the large-scale defence purchases and stockpiling requirements which were a consequence of the outbreak of war in Korea in 1950.

Canada was in a uniquely favourable position to take advantage of this post-war surge in the market for metals and minerals. We had an already well-established and advanced mining industry, proven mineral resources, ample supplies of available or accessible power, and an economy capable of supplying the trained manpower and the often complex goods, transport facilities and engineering and other services basic to successful resource development. Our geographical position, the close corporate or other links of many Canadian mining firms with mining and mineral processing companies elsewhere, a favourable tax structure, and a political climate conducive to investment were other factors tending especially to stimulate our post-war mining development. Moreover, the country had a practically untapped geological potential which promised well for future discoveries; with the aid of new prospecting techniques like the geiger counter and the airborne magnetometer large new ore-bodies like the nickel find at Mystery Lake were located. At the same time, new extractive and refining processes favoured the exploitation of newly discovered or previously-known deposits. All of these factors combined to cause the current value of mining and mineral processing production in Canada to more than treble from 1945 to its 1955 total of \$1,650 million. Simultaneously, the range of the industry's production was widened to include such important minerals as iron ore, uranium, titanium dioxide, potash, sulphur and other minerals; and the geographic basis of the industry was further broadened. In addition to expansion at previously existing locations, aluminum and asbestos are now produced in northern British Columbia, nickel in northern Manitoba, and iron ore in Labrador and New Quebec — to cite only a few examples. This process of development has also added new depth to the economy by opening up previously remote areas through the provision of new transport and power facilities such as those

at Sept Iles in Quebec, Mystery Lake in Manitoba and Kemano in British Columbia; by providing increased or new markets for manufacturers of such products as leaching tanks, chemicals, and mining machinery; and finally, by creating new by-products, such as ammonia fertilizers, chemical compounds, and even beneficiated iron ore.

The amount and relative importance of the principal minerals produced in Canada in 1955 are illustrated in Table 11.1.

Table 11.1

CANADIAN MINERAL PRODUCTION, 1955

	Volume (thousands of short tons unless otherwise stated)	Value (\$ million)	Per cent of total value
Metallic minerals.....	—	1,235	74.9
Copper.....	325	240	14.5
Aluminum.....	584	227 ^a	13.8
Nickel.....	175	216	13.1
Gold.....	4.5 m. troy oz.	157	9.5
Zinc.....	427	118	7.2
Iron Ore.....	14.6 m. long tons	110	6.7
Lead.....	203	58	3.5
Uranium Oxide.....	—	26	1.6
Silver.....	28 m. troy oz.	25	1.5
Platinum group.....	—	23	1.4
All others.....	—	35	2.1
Industrial minerals.....	—	187	11.3
Asbestos.....	1,055	96	5.8
Salt.....	1,245	10	0.6
Gypsum.....	4,668	8	0.5
Sulphur.....	625	6	0.4
Titanium dioxide.....	117	5	0.3
Abrasives, crude and artificial.....	—	42	2.5
All others.....	—	20	1.2
Structural materials.....	—	228	13.8
Total.....	—	1,650	100.0

a Net value of aluminum production (i.e., deducting value of imported bauxite and alumina) was \$202 million.

SOURCE: Dominion Bureau of Statistics, *Mineral Statistics 1955*.

Output expanded further in 1956 (the relevant indexes of physical production rose by about 4 per cent) but some excess supply and considerable weaknesses in the price of certain metals, particularly copper, lead and zinc, have since become evident. Such short-run fluctuations, either in an upward or a downward direction, have always characterized large segments of the mining and mineral processing industry, in part because of the particularly uneven growth of demand from the investment and durable goods industries. An added factor in more recent times has been the uncertainty and irregular timing of defence and stockpile purchases. Moreover, the industry is typically one of big units with the result that, as in 1955 and early 1956, shortages often appear while new facilities are being designed and built, to be replaced by some short-run excess of supply when large "lumps" of additional capacity are brought into production.

However, we have tried to focus our attention on the basic underlying trend, and to avoid being unduly preoccupied with those more distinct but less permanent movements which obscure the main path which our mining industry is likely to follow in the future.

General Forecasts

The basic influences which have operated to increase Canadian mining and mineral processing production in the past will in all probability continue to be felt with undiminished force in the future. The population and standards of living of all of the main industrial countries of the world are continuing to rise, with expenditures on durable goods tending everywhere to increase even more rapidly. Defence requirements may decline relatively from their present level but competition and technological change will combine to put heavy emphasis on investment in machinery and equipment, while the economic development of the less industrialized countries will add still further to the demand for minerals. One must, of course, make allowance for the increased absolute amount of scrap metal which will be available, and also for increasing economy in metal use and design, which will tend to reduce metal and mineral requirements relative to the output of finished commodities. Nevertheless the study which has been prepared for us on *Mining and Mineral Processing in Canada* concludes that world demand for new metal production is expected to be more than double its 1955 level by 1980, with particularly strong demand likely to be shown for the lighter metals and those additives which are capable of standing higher temperatures and of resisting corrosion. World requirements for industrial minerals are expected to expand by about three and one half times, while consumption of structural materials, which because of their relative abundance, bulk and low value are consumed mainly in local and domestic markets, are expected to rise broadly in line with Canadian construction expenditures, or between two and three times.

It is, of course, extremely difficult to estimate the share of future world markets for metals and minerals which is likely to be obtained by Canadian producers. It seems probable, though, that Canadian metal and mineral production will on the whole gain relatively to total world mineral output over the next quarter century. The main mineral users, particularly the highly industrialized economies of the United States, the United Kingdom, and Germany, are expected to become increasingly deficient in minerals and will consequently need to look more and more to external sources of supply. Canada should be in a good position to increase its share of these and other nations' requirements because of our substantial proven resources and our still largely untouched geological potential. Moreover, most of the factors mentioned earlier are likely to continue to work to our advantage. Among these factors the more important will be the technical proficiency and favourable cost record of our mining in-

dustry; the availability of power; a sound economic and political climate; the willingness and ability of our mining industry to introduce and develop new techniques and processes; and established marketing, research, and production links with producers elsewhere. Later in this chapter we shall be discussing some of these supply considerations in rather more detail.

After weighing the evidence and possibilities, we have concluded that the gross value of the production of the nation's mines, smelters, and refineries in 1980 may be about \$5 billion, almost three and one half times the value produced in 1955. Producers of structural materials are likely to expand the value of their output some two and one half times to over \$500 million, the dollar amount of industrial mineral production may expand almost four times to \$750 million, and the value of metal production may exceed \$4 billion, or well over triple their 1955 production. Expansion of that order would indicate that the industry's rate of future growth, while not so rapid as in the exceptional period from 1950 to 1955, will continue to outpace that of the economy as a whole. Its contribution to Gross Domestic Product will rise to between 4.5 per cent and 5 per cent in 1980, compared to some 4 per cent today. Direct employment in the industry is forecast at over 200,000, an increase of more than 75 per cent in the twenty-five year period, although because increases in productivity are expected to be relatively high, its share of the total employed labour force will probably not exceed the present level of 2 per cent. This expansion of production will necessitate heavy investment expenditures, with annual outlays expected to be of the order of \$1 billion by 1980, roughly four times as much as was spent on exploration, construction, machinery and equipment in 1955.

As Canadian producers are likely to obtain an increasing share of an expanding world market for metals and minerals, it is anticipated that the value of our mineral exports may increase by as much as four times to a 1980 level of some \$4 billion. In tonnage terms, the increase may be even more pronounced because, as indicated later, the price of mineral products relative to all goods and services is likely to decline somewhat and some of the comparatively low-value commodities such as iron ore and potash will probably grow in relative importance. In any event, mineral exports may well account for over one-third of the value of all Canadian commodity exports twenty-five years from now and will be the most important constituent of our export trade at that time. Foreign sales will also absorb a somewhat higher proportion of the industry's output than they do today, so that the share of production going to other countries is expected to rise to more than 70 per cent by 1980. The principal market for our minerals will be the United States and an increasing share of the industry's exports will move to that country over the next quarter century. Mineral imports will also increase, growing to about three and one half times their 1955 level in 1980 and accounting for approximately one-third of Can-

adian domestic requirements of minerals. For the most part, imports will continue to consist of minerals like tin and metal alloys in which this country is deficient or of raw materials like bauxite and alumina which are needed to supply our smelters and refineries.

The Outlook for Particular Metals and Minerals

A somewhat better glimpse of the pattern of the industry's over-all growth may be afforded by a brief survey of the expansion predicted in *Mining and Mineral Processing in Canada* for some of the leading individual metallic and industrial minerals. We cannot, of course, foresee with any certainty the precise volume or value of production of each product, but it is possible to outline the broad magnitudes of their probable growth. Iron ore is likely to show the greatest increase in volume from its 1955 level over the next quarter century with a fivefold to sixfold expansion, while the output of Canadian aluminum plants may rise by about four times. The country's output of nickel and zinc will probably about double and the value of copper and lead production may increase by two-thirds and one-half respectively. Uranium production will expand most rapidly of all in the near term and will become our leading mined product by 1959, but it is difficult to discern the magnitude of commercial demand that is likely to emerge in the years following 1962. Gold will continue to be an important mineral product but production of this metal is likely to decline in both volume and value, unless of course its price should happen to be increased.

Until 1939 Canada was predominantly an importer of iron ore, and the only commercial deposits were those being worked at Wabana in Newfoundland. The Second World War and the very prosperous decade which followed helped to change this situation. Threatened with the exhaustion of their long-term reserves of low cost open-pit ores, first one and then another of the large United States steel companies began to look to Canada. Their search for supplementary supplies proved rewarding and discoveries within several hundred miles of the Great Lakes or the Lower St. Lawrence have brought a considerable part of Northern Ontario, Quebec and Labrador into the orbit of many North American steel mills. Beneficiation, by reducing the shipping weight and improving the smelting characteristics of many of these Canadian ores, has rendered additional Canadian iron-bearing material economic. New processing techniques and an expanding economic market for other metals have also encouraged this trend. As a result, by-product iron is being recovered by firms mining nickel, copper and titanium and is being sold outside the country at premium prices. While most Canadian iron ore is destined for the United States, overseas customers are becoming more numerous and plans are well advanced for the shipment of many millions of tons of iron ore a year to West Germany and the United Kingdom. By 1980, up to 60 million tons

annually may move to steel plants in the United States, while Western Europe and other overseas countries may take another 15 million tons. Steel production in Canada is expected to triple in the twenty-five year period, and although United States' mines may continue to supply a considerable volume of ore to Canadian plants, as much as two-thirds of total domestic ore requirements, some 10 million tons, may come from Canadian sources.

Future trends in Canada's trade in primary aluminum are more difficult to forecast. For many years this country has maintained its position as the world's largest exporter of aluminum ingot on the basis of low-cost hydro-electric power and, to a lesser extent, on the basis of easy access to efficient water transportation. Competing with United States producers, who have received preferential treatment in their domestic market, the technologically advanced and well-equipped Canadian industry has managed to keep pace with the approximate doubling in demand for this metal which has taken place every seven or eight years from the 1920's onward. In *Mining and Mineral Processing in Canada* a fivefold expansion in the 1980 world demand for aluminum metal is predicted, with rapidly growing markets foreseen in the construction industry, and in the fields of transportation, electrical equipment, and consumer durables as well as in packaging and canning. However, within this expanded market, in contrast to that of iron ore, the share of Canadian producers may fall — perhaps to something like 15 per cent in 1980 from about 20 per cent in 1955. Among the reasons suggested for this decline is the fact that thermal power costs in the United States are becoming more competitive with hydro-electric power. Developments in the field of nuclear energy and the exploitation of presently unharnessed power resources in Africa or elsewhere could enable Western Europe and the United Kingdom, which absorbed a substantial portion of Canadian output in 1955, to become less dependent upon North American sources of supply in the 1970's. At the same time, the Canadian market for aluminum is expected to expand eight-fold to more than half a million tons in the next quarter century.

Of a total output of close to two and one half million tons, therefore, one-fifth may be absorbed in the domestic market, a third is likely to move to the United Kingdom, a slightly smaller share to the United States, and the balance to other foreign markets. Such forecasts would, of course, have to be modified if United States' tariffs, recently reduced, should be substantially increased or if other special measures were to be taken to protect the American industry. It should be noted also that these forecasts are based on the assumption that much of the nation's undeveloped water-power potential can, and indeed will, be harnessed during the next twenty-five years. Should it prove impossible to negotiate downstream benefit settlements with the United States on the Columbia and other rivers or should other difficulties fail to be resolved, the amount of low-cost electricity for

this purpose would be reduced. In Eastern Canada, substantial movements of hydro-electricity from Labrador to Quebec have also been envisaged. Should political difficulties arise or inter-industry differences prove to be insurmountable, the number and capacity of the aluminum smelters operating in Canada may turn out to be well below those forecast as being economically feasible in 1980.

Although shortages are now easing somewhat, nickel has been in relatively short supply throughout much of the post-war period, mainly as a result of exceptional defence and United States stockpile requirements being superimposed on growing civilian demand. Because of this situation, steps have been taken to increase production in Canada and elsewhere with the result that the total mine capacity of the free world may increase by as much as 60 per cent between now and the early 1960's. The output of the Sudbury Basin will be expanded and new mines will also be completed in the Mystery-Moak Lake area of Manitoba. Yet developments in Cuba and elsewhere may have even greater long-term significance, because the recovery of nickel on a large scale from these tropical laterites may enable the latter sources to supply more than one-third of the free world's requirements a decade hence compared to less than 20 per cent at present. Much of the new capacity will become available at a time when the United States' stockpile of nickel has been filled and when defence needs may be tending to level off. Every effort will therefore have to be made to market these supplementary supplies through ordinary commercial channels. New uses will have to be developed and former applications revived. However, it is altogether likely that world demands for nickel will fall short of the industry's ability to supply new metal during the early 1960's. This surplus capacity, much of it sponsored by the United States' Government, could have a favourable long-run effect upon demand if it helps nickel to regain some of the outlets for new metal taken over by substitute materials during the period of intense shortages in the past decade. Adequate supplies and predictable costs, meanwhile, will help to create fresh demands so that a continued and comparatively rapid increase in commercial requirements can be forecast. Canadian producers will still be in a very favourable position to meet these growing demands and are expected to supply well over half of the free world's requirements, which are estimated at considerably more than half a million tons per year a quarter of a century from now.

Uranium, like nickel, may pass through a period of excess capacity after the early 1960's when present government contracts expire. Within a comparatively short period, uranium has become one of Canada's principal mineral products. Substantial reserves have been developed and mine capacity in this country has been increasing rapidly. Meanwhile, considerable progress has been made in other countries as well. Sizable resources have been proven up in the United States, and additions to capacity are

also being made in South Africa and Australia. It is estimated that by 1960 free world production of uranium may be some 40,000 tons, of which about 15,000 tons will come from the United States, an approximately equal amount from Canada and the balance from Africa, Australia, and other countries. Military requirements beyond 1962 are virtually impossible to determine, but it seems reasonable to assume that they will fall noticeably. World commercial requirements, mainly for the generation of nuclear power, are also extremely difficult to determine because of the many uncertainties which still surround technology and costs. Many responsible people in the industry feel that, barring some major technological break-through which might make power generated from fusion a commercial possibility, the world demand for uranium after 1962 may catch up to present and planned world capacity as early as 1970; others feel this will not occur until some years later. In any event, Canada's domestic requirements for uranium will be small, even in 1980. Other countries more deficient in energy resources — notably the United Kingdom, Western Germany and Japan — will, however, have a much greater need for nuclear power and export sales prospects will therefore continue to be the principal determinant of activity here. As the United States is increasing its attempts to become more self-sufficient, the fortunes of this particular sector of Canada's mining industry may well lie mainly overseas. To what extent Canadian producers will be able to secure this overseas business in competition with mines in other Commonwealth countries and Europe remains to be seen, although our position is favourable in many respects. Canada's output of uranium will tend to fall in volume and value after 1962 but thereafter an upward trend in volume is anticipated, although how fast and how far it will go is impossible to foretell.

World markets for copper, zinc and lead have not been growing nearly as rapidly as those for the newer metals. In the case of copper, this has largely resulted from wide fluctuations in price, together with a long-term upward movement in real prices. In the case of zinc and lead, new uses have not been developed as rapidly as for many of the newer metals and growth of markets in many existing applications has been relatively slow because of increasing inroads by substitute materials and the comparatively large supplies of available scrap. However, despite probable continued slow growth in demand compared with that for other minerals, Canadian producers of copper, zinc and lead are expected to gain a larger share of world markets. This is largely because shipments to the United States market are likely to increase substantially over the long term. The long-run trend of requirements in that market has been outpacing supplies available from United States domestic mines, and many American concerns have shown increasing interest in Canadian sources of supply. Growth of the Canadian market will also be of importance, for more than a third of copper, lead and zinc production by value has traditionally been consumed

at home — a higher proportion than for any of our other principal metallic minerals.

In contrast to the prospects for increasing production of these metals, output of gold, another of our traditionally important minerals, will probably decline absolutely in volume and value over the next twenty-five years. Although increasing quantities will be available as a by-product of base metal mining, these will be more than offset by the expected decline in production from straight gold mines if the present price and cost conditions prevail. For many years, copper, gold, zinc and lead were the core of the Canadian mining and mineral processing industry — copper, indeed, being our leading mineral product in 1955. By 1980 all four will have declined in relative importance and leadership in the industry will have passed to other metals. Yet all four metals will still be important, particularly copper, which is expected to rank behind only aluminum and iron ore in value.

Various other metals will be produced in increasing volume over the next quarter century. Magnesium, following in the wake of aluminum, may be reduced to metallic form in considerable tonnages by 1980. Titanium, which is already being exported in slag form, also has bright possibilities. As the market for the oxide and for metal sponge will multiply over the next quarter century, production of these more highly manufactured products may also lead to a greater degree of processing in this country. The nation's output of silver, mined principally as a by-product of base metal operations, is likely to expand by between one-half and three-quarters while platinum metal production, allied with that of copper and nickel, could increase by as much as 50 per cent. Metals like cobalt, selenium, tungsten, cadmium, molybdenum, calcium, tellurium, lithium, manganese, columbium and thorium may also make a significant contribution to the total value of Canada's mineral output over the next twenty-five years.

Among industrial minerals produced in Canada asbestos will continue to be the most important. With rapidly expanding markets in the electrical, automotive, machinery, chemical and construction industries, world demand may rise two and one-half times to three times by 1980. In Western European markets Canadian producers may face increasing competition from the Soviet Union and Southern Rhodesia and the Canadian share of world markets, two-thirds in 1955, may decline to a figure closer to 50 per cent. However, the United States market, which now absorbs about two-thirds of Canadian output, will grow rapidly. With enlarging markets throughout the Western Hemisphere and shipments to overseas countries likely to continue, though not relatively so important, production in this country will probably at least double in volume. As demand rises, shipments from the Eastern Townships of Quebec, the largest asbestos producing area in the world, and from newly developed mines at Matheson,

Ontario and Cassiar, British Columbia, may be supplemented by production from other areas now under investigation in Quebec, Northern Ontario, Newfoundland and British Columbia.

Following asbestos in importance among industrial minerals, potash production will provide the most spectacular growth. By 1980 North American requirements, mainly for fertilizers, which have to date been supplied from United States and overseas sources, are expected to be of the order of eight million to ten million tons per year if soil productivity and nutritional standards are to be maintained. As much as 2½ million tons a year may be drawn from the extensive potash beds in Saskatchewan which are now under development. The production of gypsum both for the domestic market and for export will increase substantially. Mines and quarries in Newfoundland, Quebec, Ontario and British Columbia will continue to supply the growing domestic market, while those in Nova Scotia, now producing four-fifths of Canadian gypsum, almost entirely for export to the northeastern United States, may expand production more rapidly and increase their share, at present one-third, of United States raw gypsum requirements. Exports from new developments in Newfoundland may also be of considerable importance in the future. Production of salt for the domestic market will expand; and sulphur, produced as a by-product from metal mining and natural gas purification, is likely to become so abundant that marketing difficulties may be encountered in the intermediate term. Among other industrial minerals we expect the most important will be fluorspar from Newfoundland to meet the increased requirements of the aluminum, steel and chemical industries, barite from Nova Scotia for expanding markets in oil-well drilling, and nepheline syenite from Ontario to supplement supplies of feldspar in the glass and pottery industries. For these, as for many other Canadian mineral products, increasing quantities will move largely to the United States market.

Supply Considerations

The above estimates of future production of some of the leading individual products were given in volume terms. However, it should be noted that our estimates of the over-all value of mineral production took into account probable relative price trends, as outlined in the study of this industry. Over the last 30 years, despite increasing resort to lower-grade or less accessible mineral deposits and despite rather prolonged periods of short supply and marked short-term price fluctuations, the long-run tendency of the prices of most minerals has actually been to remain stable or to decline in relation to those of other goods and services. We would expect that short-term price movements either up or down will continue to occur from time to time. Over the longer term, however, we would expect that the relative prices of minerals as a group will decline from their levels in 1955, continuing the downward drift evident in the last three decades. This will not, of course, be true of every individual product

— some may actually rise in relative price and the price of others such as iron ore and gypsum may remain broadly unchanged in relation to goods and services generally. However, in the case of many metals and processed materials, particularly the latter because of the relatively great increases in productivity foreseen for smelters and refineries, declines in relative prices are by no means unlikely.

These trends in real prices for the world's minerals are expected to prevail because further technological developments in discovery, extraction, processing, and use are expected to more than offset possible depletion of some of the higher-grade or most accessible mineral deposits. Scientific exploration will be increasingly relied upon for discovery of orebodies which underlie the carpet of soil, lakes and overburden covering most of this country. The basis of prospecting will continue to be geological maps and reports dealing with particular areas and indicating promising sites suitable for further investigation. Aircraft and helicopters, improved photographic techniques, and new prospecting equipment have greatly facilitated geological reconnaissance mapping in recent years, but less than one-third of Canada has yet been mapped and an even smaller portion surveyed on a scale adequate for mineral exploration. If a geological map of the country is to be completed within a reasonable time and if the expansion of the mining industry is to be facilitated, the excellent work of the Geological Survey should be speeded up through an expanded programme limited only by the number of suitably qualified people available. In promising areas revealed by geological mapping, exploration companies in the last few years have come to rely more and more on the basic chemistry of geology and on geophysical equipment like the airborne magnetometer to aid in the search for ore deposits. Much remains to be done on the further development and application of such geochemical and geophysical techniques, particularly in the interpreting of anomalies, while further fundamental research on the genesis of ore deposits and the geochemical association and migration of the elements would also be of great value to the prospector of tomorrow. An expanded programme of geological mapping with emphasis on the development and use of new prospecting techniques will permit the rate of discovery to remain high in Canada despite a decline in the proportion of easily found orebodies exposed by surface outcrops.

In mining operations better quality tools for drilling, blasting, and transporting ore and the further mechanization of operations in underground and open-pit mines will bring about increasing productivity and lower costs. Large-scale open-pit operations for the non-selective mining of lower grade ores close to the surface will probably become more common than has been the case even in the recent past. In processing operations, modifications of existing techniques in the primary concentration of minerals, particularly in beneficiating low-grade ores, will lead to increasing efficiency.

Hydro-metallurgy has been of increasing importance in the last five years. The evolution of such processes will permit lower-grade and more highly refractory ores to be treated economically and make possible the development of continuous flow processes permitting more automatic operations. Developments in metallurgy and chemistry will facilitate production of higher purity metals and the recovery of additional by-product values from slag or waste materials.

In the field of marketing, research will evolve new uses and new substitutes for various metals and minerals. Relative price changes will encourage such research, particularly favouring metals which are comparatively low priced or which enjoy relative stability in price. Over the long run, the ferrous and light metals, including iron and steel, aluminum, magnesium and titanium, of which the ores are plentiful, will tend to make further inroads in fields originally reserved to the heavy non-ferrous metals, such as copper, lead and zinc. At the same time non-metallic substitute products, such as plastics, synthetic rubber, glass, treated wood, and processed industrial minerals such as asbestos, may offer increasing competition in some limited fields to various metals. Asbestos itself may face increasing competition from glass or other substitutes in uses where high-temperature shielding is not of major importance. Emphasis on processing and using metals of highest purity, already of importance for metals such as zinc, aluminum and magnesium, will extend to other metals, increasing their markets in special applications; and new industrial alloys, designed for specific service conditions such as high temperatures or high strength-to-weight ratios, will be evolved. In new alloys many metals little used today, such as lithium, silicon, the rare earths and perhaps calcium, are expected to find expanding markets.

Technological advances in all phases of the industry will be of importance if costs, which might otherwise tend to rise, are to be kept within the bounds necessary if producers in this country are to compete in the markets of the world. Canada is not the only country where mining and mineral processing have undergone rapid expansion in recent years, nor is it the only area with promising mineral prospects. The Soviet Union and various countries in South America and in Africa have also greatly expanded their mineral output and have become increasingly important as suppliers to world markets. In 1955, for example, the Canadian share of free world production of some of the leading metals and minerals was approximately as follows: copper, 10 per cent; aluminum, 20 per cent; gold and zinc, about 15 per cent each; iron ore, 5 per cent; and lead, 10 per cent. To ensure that our contribution to world production and trade remains high, the Canadian industry must remain a leader in the technological field; and much research, both of a fundamental and applied nature, will be required. Research in processing, like that which led to the successful exploitation and treatment of the Lynn Lake nickel ores, will be of the greatest value to the industry. With comparatively cheap and abun-

dant energy resources still available in this country, the development of suitable processes not only for more economic operations in existing smelters and refineries but also for production of commodities such as titanium, uranium, and manganese metals could have great benefits both for the industry and for the nation. If such research is neglected here but continues to be undertaken in other countries, potential markets for Canadian minerals could be lost for many years. In view of the probable continuing shortage of technically trained people, close co-operation between the industry and federal and provincial mines departments will be important.

In the light of the vigorous expansion of production which we foresee, it is comforting to know that Canadian reserves of most minerals, as established by the various mining companies, are sufficient to maintain present and anticipated rates of production for many years. Known reserves, at present rates of production, will last as long as 250 years in the case of iron ore; 50 years or more in the case of asbestos, lead and zinc; 45 years in the case of copper; and 35 years in the case of nickel, excluding large reserves in the Mystery-Moak Lake area, Manitoba. These are demonstrated reserves of ore of which tonnage and grade have been computed from surface and underground exploratory work and drilling. As it would be unsound economically to spend large sums on the development of reserves years before they are needed, mining companies normally maintain only sufficient reserves for operating security and efficiency. Consequently their reserves tend to remain nearly constant from year to year; they reflect current or near future production rather than the over-all potential of the mines. Thus production of base metals in the 25 years ending in 1955 exceeded the reserves known to exist in 1930, yet by 1956 base metal reserves in Canada had increased substantially over the reserves of 1930. Perhaps of even more significance than the magnitude of reserves at any one time is the trend, over the years, of the ratio of known reserves to production. As this ratio is being maintained or increased in Canada, mineral resources would appear to be more than adequate to support current and expected output.

Ore reserves form only a part of the mineral resources of the country. Of more importance in a discussion of long-range supply are the potential ores and the ore deposits that are still to be discovered. As our reserves are mined, they must be replenished from these two sources. The potential ores include deposits too low in grade, too inaccessible, or too difficult to treat to be mined profitably under present conditions. In the future, improvements in transportation, increases in price, reductions in costs, technological developments such as new and improved mining methods, new techniques in metallurgical treatment, or unforeseen uses for by-products, may make them economic. But maintenance of our reserves will depend mainly on discovery of new deposits. An appraisal of the number of deposits likely to be found in the future to replace those currently being mined must be based mainly on our knowledge of the distribution of rock

formations in Canada favourable for the occurrence of different types of mineral deposits. Much of Canada has still to be geologically mapped and much of the remainder has been covered in reconnaissance only. Nevertheless, available information gives us confidence that new discoveries will maintain or augment our present reserves over the next twenty-five years. Most of our present mines lie within a few hundred miles of the main east-west railway lines. In contrast the main geological regions tend to run in a northerly direction. As the northern parts of these regions receive greater attention, we may reasonably expect they will, in turn, be found to contain orebodies in number, size, and variety comparable to those in the relatively well explored and currently accessible southern areas. Furthermore, the mineral potentialities of the more accessible southern areas are far from exhausted as has been demonstrated by the number, size, and variety of deposits found in the last decade by conventional and newer prospecting techniques. The rapid development of these new techniques is making the prospector more proficient in the search for orebodies not exposed at the surface, and the future will see increasing concentration on discovery of orebodies concealed beneath lakes, muskeg, soil and vegetation, both in the older mining areas and the relatively unexplored northern regions. The application of these new techniques, which are constantly being improved, has played an important part in the accelerated rate of discovery of ore deposits in Canada in the last five years, and will continue to do so in the future. In our view, there is little need to be alarmed about undue depletion of Canada's mineral resources. Indeed, there is every reason to expect that our reserves will be maintained or increased by the discovery of new deposits, supplemented by technological developments that will make possible the profitable mining and processing of lower-grade material that cannot now be classified as ore.

As exploration and development proceeds into more remote areas and as operations become increasingly mechanized, the scale of mining and processing operations will be even larger than it is today. We would expect recent trends in financing to continue over the next twenty-five years with most of the industry's expansion being financed either through borrowing or out of retained earnings by existing Canadian producers. New capital investments by large United States and other foreign mineral-using companies concerned about their long-term supply position will also continue to be important. Millions of dollars are needed to bring new mines and processing plants into production and, although new producers may from time to time enter the field, it seems altogether likely that production will tend to be increasingly concentrated among large concerns, whether owned by Canadians or non-residents. Smaller mining and exploration companies may continue to play a significant role in the discovery and preliminary stages of new mining operations but the larger companies, particularly those with integrated operations from production to marketing, will be in a more favourable position to raise the necessary amounts of capital.

Production from an increasing number of mines in this country will tend to be integrated with processing and fabricating activities elsewhere and a greater proportion of our mineral output will move either between subsidiary and parent or under long-term contracts with overseas and American producers. Proportionately less therefore may be traded on the open market. These developments may present some problems, particularly in ensuring that contract prices are fair and reasonable to Canadian producers, but they will also tend to bring about greater price and output stability in the Canadian industry, particularly in mining operations.

The Possibilities of Further Processing

With these prospects of a strong and rising demand for our mineral output over the long run, we should do what we can to ensure that integration of Canadian mine production with processing operations elsewhere does not, in itself, retard the expansion of refining and smelting operations in this country. There are many factors which will tend to inhibit the growth of processing operations in Canada, not least the fact that there is a very limited market in Canada for most of our minerals. Also, as we have shown, we have by no means a monopoly position in the supply of minerals and our customers in other countries usually have other sources of supply available to them from which they could draw their requirements if indiscriminate restrictions were placed on the export of ores and concentrates. Tariffs and trade restrictions in other countries, particularly the United States, play a very important part in effectively excluding shipments of many minerals in processed form. In addition, there are economic factors of a more fundamental nature which must not be forgotten and which in numerous instances dictate that minerals be transported in ore and concentrate form to the areas of their ultimate consumption. Iron ore, while its metal content can often be improved at the source, is generally shipped out to centres in which adequate supplies of coking coal and steel scrap are available; it is unlikely, therefore, unless there are changes in technology, that more than a small percentage of our production will be exported in the form of pig iron or steel. Gypsum, because its products deteriorate when handled, must be transported in its relatively raw state. On the other hand there are many products in which economics favour on-site processing; for example, copper is easily reduced and can best be shipped in its metallic form. Lead, zinc, and nickel may be smelted and refined close to the mines if low cost energy is available and outlets for their by-products can be found, while uranium could fall in this latter class also. Of course, other circumstances like plant construction costs, the availability of chemicals at competitive prices, and assured markets must also be favourable before processing in Canada can be said to merit heavy investments in projects of this type.

Generally, energy must be available in adequate quantities and at low unit prices if processing is to be economic. At one time, water-power was

the only Canadian resource meeting these qualifications and large blocks were harnessed for this purpose in Ontario and Quebec and, to a lesser extent, in British Columbia. More recently, it has become possible to build very large steam plants utilizing coal, oil or natural gas because technological improvements have helped to narrow the gap between the kilowatt-hour costs involved in generating electricity by thermal and hydraulic means. Canada's power advantages may well be reduced considerably by the advent of nuclear power in large amounts and at competitive prices. If regional and national differences in the cost of electricity are narrowed or eliminated, Canada may lose one of its principal assets insofar as the initial processing of minerals in this country is concerned. To some extent, natural gas and oil may be expected to take the place of water-power, particularly as chemical processing techniques are becoming increasingly important in the mineral industry. Petroleum fuels and petro-chemical materials make other methods of manufacturing possible and result in a wider range of by-products. Western Canada will benefit from these developments, although oil and natural gas are more transportable forms of energy than is electricity. Exported to the United States, they may frequently be supplied at prices and under conditions more favourable than those offered to prospective processors in Canada. In such circumstances it will be difficult for Canadian mining companies in Western Canada to process minerals prior to export, particularly as the United States tariff is substantially higher on imports of processed materials than on materials in the raw state.

Nevertheless, from time to time it may be possible to process a larger share of production of certain minerals, particularly metals, prior to export. The value added by processing operations is considerable, and when the opportunity does arise it should not be lost. But we should always remember that many of Canada's customers in other countries usually have alternative sources of minerals open to them. If we should be unreasonable in our demands that further processing operations be undertaken in Canada, we might find that our customers would look elsewhere for their supplies. Successful efforts to increase the degree of processing in this country will depend essentially on timing the encouragement of domestic processing to coincide with growth in demand. Wherever new smelters and refineries are needed, every effort should be made to ensure that new processing facilities are established in Canada rather than at existing locations elsewhere if it is economically feasible to do so. In some cases informal discussions with producers may be all that is needed to obtain the desired result. In others, the provincial authorities might reasonably be expected to persuade or to require applicants for concessions to agree to undertake some degree of processing, possibly increasing over a period of years. If such attempts fail there may be merit in requiring exporters of ores, concentrates and other semi-processed commodities to obtain export permits valid for a stated period. Each case should be examined carefully and individually. New mines could be given every encouragement

to get into production but it would be made clear that the circumstances in each case would be re-examined at stated intervals, perhaps every five years or so. In general, exporters should be made aware that over the years they would be expected to do more processing in Canada except when obstacles in the way of doing so proved to be real or the cost disadvantages appreciable. Government sponsored programmes of process research and development might also help considerably to stimulate further processing in this country. Pilot plants built in the area where the particular mineral concerned is to be found might later be expanded into full-scale operating facilities in the same area. American producers have benefited in this way from the important work done by the United States Bureau of Mines. With more emphasis on this sort of work, the mines departments of the federal or provincial governments might similarly be able to solve processing problems unique to this country and at the same time promote a more logical evolution of smelting, refining and primary fabricating activities within, rather than outside, Canada.

Conclusion

In summary, the anticipated growth and development of our mining and mineral processing industry is expected to raise the industry to a position in the Canadian economy in which it will surpass the forest industries and will fall not very far short of agriculture in its contribution to over-all domestic output. While not undergoing as dramatic a growth as in the preceding quarter century, its expansion will still be an important contributor to the dynamism of the Canadian economy in the years ahead, even though its role in this regard will be much less significant than that likely to be played by the energy industries. Apart from its direct effects on incomes and exports, the mining industry will continue to play an important part in opening up the country's undeveloped territory, in providing new markets for our manufacturing and service industries, and in stimulating investment and output in many related fields such as construction and transportation. We would expect also that with new techniques, new products, and new mines, both the industry's geographic base and its range of production will be further widened. Although the nature of demand and supply conditions confronting the industry makes it likely that short-term fluctuations in prices and production will continue to be felt, the industry may be basically more stable than in the past because of corporate arrangements and the pursuit by governments throughout the world of policies designed to maintain full employment. As the industry grows, stabilizes, and matures, it may well be unnecessary to accord it special treatment through subsidies and tax concessions in excess of those extended to many other Canadian industries. The further substantial growth which is foreseen for the mining and mineral processing industry suggests that in every respect it can be safely regarded as a soundly-based and strong contributor to the Canadian economy.

SECONDARY MANUFACTURING INDUSTRY

OUR DISCUSSION of the resource industries and of the primary manufacturing based on them emphasized how spectacular a part they have played recently in the development of the Canadian economy, and how much they may be expected to contribute to our future growth and prosperity. It is perhaps not so widely recognized that other sectors of Canadian industry have in recent years experienced just as dynamic a growth. Indeed, the development of our secondary and service industries during and after the War has in some respects wrought more profound changes in the way Canadians work and live than many of the more publicized activities on our frontiers. If it may be a little premature to say that Canada has come of age industrially, we are much more a nation of urban factory and office workers than we ever were before. We see no reason why this trend should be reversed; we think, in fact, that few Canadians would want to reverse it.

Much of this growth in secondary as opposed to primary industry has been concentrated in the sector which we have labelled "secondary manufacturing". As defined by us here, it does not cover the whole range of industrial activity that the Dominion Bureau of Statistics classifies as "manufacturing". Excluded are those "primary" manufacturing operations which involve relatively minor processing of domestic resources, in which the value added by manufacture is relatively low, or those highly capital-intensive and often complex industries which produce industrial materials from our basic natural resources and which sell them mainly in export markets. In contrast "secondary" manufacturing industries are characterized by a rather higher degree of processing and by a much greater dependence on the domestic market. They tend to be located close to the centre of that market, generally produce end products rather than industrial materials, draw on both foreign and domestic suppliers for raw materials and components, and on the average have a smaller capital investment per worker than the basic resource industries. A detailed list of secondary industries, giving output and employment in each, is shown in Table 12.1.

Although any division of the larger manufacturing sector necessarily involves some arbitrary decisions, we have found it helpful because it has enabled special study to be given to the different characteristics and problems of both primary and secondary manufacturing industry. Of

the two groups, secondary manufacturing is much the larger, accounting for about three-quarters of the output and a slightly higher proportion of employment in the manufacturing sector.

Table 12.1

OUTPUT AND EMPLOYMENT FOR SECONDARY MANUFACTURING INDUSTRIES IN 1953

	Gross value of Production ^a (\$ millions)	Employees ^b (thousands)
Motor vehicles and parts	\$1,143	56.3
Other iron and steel products	1,083	98.5
Clothing	858	120.1
Electrical apparatus and supplies (incl. electronics) . .	848	76.9
Petroleum refining and coal products	823	17.1
Textiles (excl. clothing)	701	73.2
Chemical products (secondary)	626	36.6
Printing, publishing, etc.	544	66.5
Miscellaneous food products	509	23.1
Primary iron and steel	459	35.0
Beverages	443	21.9
Aircraft and parts	399	38.1
Paper products (secondary)	389	26.2
Industrial & household machinery	385	40.6
Non-ferrous metals products (secondary)	371	26.9
Bakery products	354	40.3
Railway rolling stock	338	35.5
Non-metallic minerals products (secondary)	300	29.2
Rubber products	291	22.6
Furniture	232	29.8
Leather products	222	33.1
Tobacco products	214	9.5
Shipbuilding	183	22.6
Agricultural implements	171	14.2
Other secondary wood products	117	12.9
Other transportation equipment	26	3.7
Miscellaneous manufacturing	261	32.2
Total secondary manufacturing	\$12,290	1,042.6
Employment according to labour force data ^b		1,090.0

^a Gross value of production is based on the final factory selling prices of output and includes a substantial amount of double counting.

^b The Census of Industry Employment figures on which this table is based do not cover the entire labour force in secondary industry; the labour force aggregate is somewhat more comprehensive and is more suitable for comparisons between sectors of the economy.

SOURCE: D. H. Fullerton and H. A. Hampson, *Canadian Secondary Manufacturing Industry*, 1957, a study for the Commission, Chap. 9, Table J, p. 202, and Chap. 9, Table K, pp. 204-5.

We have found it rather surprising that such an important sector should have attracted so little study by our economic analysts and historians. Some individual manufacturing industries have from time to time

been examined, but the emphasis has tended to be more on corporate structure and history, or on price and marketing arrangements, than on the basic reasons why these industries are more or less efficient than similar industries in other countries. Certainly there has been little attempt to draw general conclusions which would apply with some reasonable degree of consistency to the sector as a whole or to most industries in it. In view of this dearth of analytical information we felt it necessary to initiate studies of a number of individual secondary industries and of secondary manufacturing generally. We did this not only to enable us better to appraise the problems and prospects of Canadian secondary manufacturing industry, but also to encourage a wider interest in this very important but inadequately documented segment of our economic life. The seven studies of secondary industry which were undertaken for the Commission are listed in Appendix C; obviously it was impossible to have studies made of all industries in the group, or even all the large ones, and the selection was made on the basis of some industry characteristic of special interest.

In these seven studies, and in the more comprehensive study *Canadian Secondary Manufacturing Industry*, prepared by members of our staff, a great deal of emphasis was placed on the factors which affect the competitive position of secondary manufacturing industry today and which are likely to bear on its growth in future. The purpose of these studies was to suggest answers for such questions as these: what is the cost position of Canadian secondary industries as compared with those in the United States and elsewhere — and what are the main reasons for any differences? What developments in future are likely to affect the competitive position of Canadian industry? Which industries in the group have grown most rapidly in recent years, and for what reasons, and which industries may be expected to show the most rapid expansion in future? How large a secondary manufacturing industry may be expected by 1980? None of these or related questions is easy to answer, but the attempt provides a picture which, if blurred and indistinct in many places, at least enables some judgments to be formed about secondary manufacturing, its competitive position, and the likely course of its future development.

Past Growth

Any appraisal of the sector's present position and prospects must of course begin with a reference to its past growth. It is obviously impossible in this report to do justice to the story of that development, and readers are referred to the study, *Canadian Secondary Manufacturing Industry* for the more essential details. Put very briefly, secondary industry has gone through three periods of very rapid growth: the first decade of this century, when the opening of the western wheat economy and the rapid expansion of the railways gave impetus to the capital goods industries; the boom in the last half of the '20's; and the War and post-war

expansion of the past 18 years. The crucial factor in the story of its growth has been the expansion of the Canadian market for its products. Like the people in other industrial nations, Canadians have demanded more manufactured goods per capita as their levels of living have increased. Also, growth in the size of the Canadian market for manufactured products has resulted in some improvements in the competitive position of Canadian manufacturing activity and thus in some substitutions of domestically produced for imported manufactured goods. Currently production in secondary manufacturing is some three times its pre-war level, and forms over one-fifth of the total output in the economy. About twice as many Canadians are employed in the sector as before the War; these 1,100,000 employees constitute one-fifth of the labour force. Regionally, secondary industry has remained since the turn of the century largely concentrated in Ontario and Quebec; since 1926, the earliest year for which detailed regional material is available, a surprisingly constant 86 per cent to 87 per cent of total Canadian output and employment in secondary industry has been concentrated in these two provinces. Moreover, most of this industry is found in a narrow strip of land between Quebec City on the east and Windsor on the west; even within this strip there are differing degrees of concentration, with a much higher degree of industrialization in and around the two largest cities, Montreal and Toronto. The fact that there has been so little change in the degree of concentration, despite very great technical changes and shifts in production within the sector, suggests that the economic forces inducing this relative concentration in Southern Ontario or Quebec are strong. Nevertheless, a number of other areas in Canada are experiencing as rapid a build-up of secondary industry as the two central provinces, in some instances due to an abundance of a scarce resource and in others to an unusually rapid population growth. Edmonton and Vancouver are examples of such centres.

The close ties linking the expansion of secondary industry with the growth of the domestic market cannot be emphasized too strongly. Export sales have never accounted for an appreciable proportion of the output of secondary industry, although in a few industries, notably agricultural implements, distilled beverages and automobiles, export sales at times have been important. In 1929 about $7\frac{1}{2}$ per cent of the sector's output was exported. By 1939 this proportion had fallen below 7 per cent, and by 1955 it appears to have been slightly less than 6 per cent.

In view of the record of growth, it may be assumed that Canadian secondary manufacturing industry generally is in a healthy state, and that consequently there cannot be very much wrong with its cost and competitive position. Yet this general picture may in some respects be misleading. All industries have not grown at an equal pace and indeed some have declined. Import competition has always been strong and persistent, and throughout our history has had a substantial share of the domestic

market for the products of secondary industry. Since the import volume and share of the market is one fairly important measure of the ability of our manufacturing industry to compete, subject of course to changes in the effective level of tariff protection, it is useful to examine some of the import data as a preliminary to an examination of competitive factors affecting the position of our industry. Although there are considerable statistical difficulties in the way of establishing precise figures, the Commission's study of secondary industry concludes that in 1953 the import share of the market for products of secondary manufacturing was probably in the neighbourhood of 18 per cent. In 1929 the share was estimated to be 20 per cent to 21 per cent, and in 1956 and 1957 it appears to have risen again to about its 1929 level. It is interesting to note, of course, that the past two years have been characterized by a peculiarly strong investment boom and abnormally large inflows of capital. In periods such as this, demand tends to spill over into imports, particularly from the United States; many of the investment goods needed for the capital programme are not readily available in Canada. Conversely, in depressed periods such as the '30's investment declines very sharply and the import share similarly declines.

Apart from such changes in the import share of the Canadian market which result from fluctuations in Canadian economic activity, this relatively high volume of imports is essentially a reflection of the specialized and open nature of the Canadian economy as modified by the tariff and other protective factors. It has been profitable for Canadians to devote resources to producing and exporting some things, and importing others. If we specialize more than most industrialized countries in the production of primary products it is because of our relative abundance of, and easy access to, natural resources. It is not surprising that secondary manufacturing is not so highly developed in Canada as in the United States, the United Kingdom or Germany. Our natural resources, of course, provide only a partial explanation why our requirements for manufactures are to such a degree met by imports and why the role of secondary industry in the economy is somewhat less important than in these other countries. Of perhaps greater importance is the fact that Canadian manufacturers have to face some very serious disabilities in trying to produce goods at prices competitive with imports. The extent to which these disabilities increase Canadian manufacturing costs is reflected in comparative figures of productivity. It is stated in *Canadian Secondary Manufacturing Industry* that output per man-hour in Canadian secondary industry is perhaps 35 per cent to 40 per cent below that of the United States, although very considerably higher than in the other industrial countries of the world.

Size of Market and Specialization

Of the disadvantages which Canadian manufactures have to face, unquestionably the greatest are those associated with the relatively small

size of the Canadian market. As we have pointed out, the domestic market forms the principal outlet for the products of Canadian secondary industry; the post-war restraints on imports imposed by overseas countries, together with the formidable barriers to entry to the rich United States market, has accentuated this dependence in recent years. As a result, our manufacturers are unable to obtain the full benefits to be realized from mass production and specialization in a large market, such as are obtained by manufacturers in the United States, and it is not surprising that it is the American manufacturer who provides the principal source of competition for Canadian producers.

The development of modern industry as we know it today is in fact based broadly on the principle that as volume of output increases costs tend to decline. The savings of larger volume arise from lower unit costs for overhead, depreciation, tooling and die costs, research and development, and particularly from specialization. As one manufacturer put it at the Commission hearings:

"In modern manufacture there are great advantages to . . . specialization. It makes possible the development of straight-line, integrated manufacture, in plants specifically designed for the product, and with equipment that reflects the optimum in the use of power, automation and semi-automation. It makes possible lower labour costs per unit of product, and permits the manufacturer to concentrate the thinking, efforts and skills of his people on the one product or product line, without wastefully scattering their efforts or abilities over a larger area."¹

The study of Canadian secondary industry makes some attempt to compare relative market sizes in the United States and Canada. This study finds that the United States market for products of secondary industry is in physical terms some 18 to 19 times as large as the Canadian, compared to a population difference of about 10 to 1 and an income difference of 15 to 1. Obviously the relative demand for many products will vary widely from the aggregate; in spite of superficial similarities the economies of the two countries are appreciably different and these differences are reflected in the demand for, and production of, secondary industry products. Using comparative production data, we find such extremes as the United States industrial machinery industry producing 62 times as much as the Canadian — but the railway rolling stock industry producing only 3½ times as much. In those industries where extreme differences in output exist, the Canadian market is usually not large and demands are usually supplied to a substantial degree by imports. In fact, the study suggests that there is a fair correlation between the relative size of the Canadian market and the proportion of it which is supplied by imports. This supports the conclusion that when the Canadian market is relatively large Canadian costs tend to be more competitive than when the market is relatively small.

It must of course be emphasized that a large market in Canada does not guarantee that a product can be manufactured in this country at a price competitive with imports. The crucial factors are the nature of the production process, the size of the optimum plant in the United States, and the extent of the cost penalty for operating below that optimum level. Thus if a product is simple to manufacture, and the economies of large-scale production not very great, the Canadian cost handicap will not be very large even though there may be very great differences in the size of the markets. Conversely, Canadian disadvantages are normally at a maximum when the product is complex, its design is altered frequently, capital and overhead costs are large, and the volume of output relatively small. An example of this latter is an automobile body stamping, and it is not surprising that most of our requirements of such products are imported.

The difference in markets is only part of the story. Even where the Canadian market is large enough in total to make possible a few plants of close to the optimum American size, in many secondary manufacturing industries there appear to be many more producers relative to the size of the market than exist in the United States. One classic case was brought to our attention by the president of a large electrical manufacturing company who told us that a plant of minimum efficient size to manufacture refrigerators in the United States would have an output of 250,000 to 350,000 units per year. By contrast the total Canadian output of refrigerators in 1955 was 267,000 units — produced by 19 manufacturers!² This pattern is common, and in many industries the fragmentation of the small Canadian market among a number of producers has the effect of frustrating the achievement of a better cost position. It is suggested in the study of secondary manufacturing industry that this relatively large number of producers may in part be traced to the fact that many firms in Canadian secondary industry are branches or subsidiaries of a United States parent company. In fact, in many secondary industries we have come close to a wholesale importation of the same firms operating in the United States (although, for the sector as a whole, less than one-third of output is produced by firms controlled in the United States). These firms initially may take an overly optimistic view of their prospects. It appears, however, that sometimes United States corporations exhibit a considerably greater reluctance to close Canadian subsidiaries that are not paying their way than similar branches in the United States, probably because of long-term optimism about the growth of the Canadian economy, although (as suggested to us by several manufacturers) loss of face in the larger arena of American business may also be a factor. Another consideration undoubtedly is that the closing of a United States branch is a much simpler operation and involves no interruption in the flow of the firm's products to the area.

Despite the many similarities in corporate entities in Canada and the United States, however, the organization of production is very different, and these differences probably reveal more of the reasons for our relative lack of concentration of industry than the existence of a widespread relationship of parent to subsidiary. In comparing Canadian plants with similar ones in the United States, one is struck, along with the differences in sheer size, by the fact that the Canadian plant in most cases produces a much greater variety of products in relation to its output. This appears to be equally true for Canadian-owned plants and subsidiaries of United States companies. This diversification of production in Canadian plants is again a reflection of the much smaller market here than in the United States. As witnesses pointed out to us frequently, the advantage of a large market may be derived more from the fact that it permits a higher degree of specialization than from the building of a larger plant. One of our large rubber companies, for example, produces 600 different sizes of tires in one plant compared to a small fraction of that number in most United States plants.³

It is thus fair to conclude that in most secondary industries we have an appreciably greater number of producers for the size of our market than the Americans, and production is carried out in much less specialized plants, all of which accentuates the cost disadvantages of the Canadian manufacturer. The extent of the handicap will of course vary widely from industry to industry and indeed from product to product, and it is beyond the compass of this report to try to provide detailed estimates — readers are referred to the various studies. It is appropriate for us, however, to try to suggest some of the reasons why our secondary industry, given its market handicap, might still be able to produce goods more cheaply than it does.

To some extent, the diversification and lack of specialization is an inevitable result of the decision to encourage a broader range of manufacturing in this country than would have occurred in the absence of the tariff. But quite apart from this, there is clearly scope for the development in the future of a more rational system of production and specialization. Of the impediments to this development, one frequently heard is that the Canadian manufacturer must diversify to obtain a large enough volume to keep down overhead costs. Moreover it is argued that the Canadian consumer is conditioned by advertising to expect the same degree of choice as his American counterpart, and in a market such as this it is not likely that competition would lead to the concentration of an industry into the hands of one or two producers. Also many manufacturers suggest that to do business they must carry and produce a wide range of products which require them to diversify more than they feel is desirable. This may in part be due to the fact that the Canadian market may not be large enough to make possible the more specialized distribution facilities existing in the United States,

where a wholesaler may build up his line by buying from many specialized producers. On the other hand, it is suggested by some that it is the lack of specialization in production which has prevented the development in Canada of this American type of wholesaling organization.

It is sometimes suggested that manufacturers in this country are able to establish their selling prices behind the protection of the tariff, thereby limiting competition and permitting the least efficient producers to remain in business. Such an allegation would not seem to be justified according to the findings contained in *Canadian Secondary Manufacturing Industry*, from which the following quotation is taken:

"We find it difficult to believe that tariff-protected price agreements are prevalent enough to have a significant inhibiting effect on competition and specialization generally. Although the decision to encourage secondary industry in Canada has involved some degree of tariff protection and has encouraged a wider diversification of manufacturing production than would otherwise have occurred, this does not mean that all protected industries are free from price competition either within the country or from imports. It is true that in the abnormal period of the 'thirties and 'forties the tariff and exchange restrictions may have hindered the development of a fully competitive market, but the post-war reductions in tariffs, the expansion of the Canadian market, and the increasingly competitive attitudes of management have combined in recent years to intensify the degree of competition in almost all secondary industries."⁴

Several manufacturers suggested that diversification is "safer". The specialized producer may find himself at the mercy of one or two buyers who may threaten to switch to readily available imports; some buyers may not wish to tie themselves to a single Canadian producer even at some concession in price; with rapid technological changes the Canadian specialist has much less scope than an American producer for switching into new products should his specialty become obsolete. Other manufacturers expressed the view that the specialist exposes himself to the charge of being a monopolist, and, if not prosecuted, at least subject to a measure of public disapproval. Since there is a considerable measure of specialization now in such industries as chemicals, this appraisal of the consequence of specialization may be entirely unwarranted; but it is a view that has wide currency.

Although some of these arguments are of questionable validity, there is no denying the fact the Canadian secondary industry is a good deal less specialized and concentrated than consideration of productive efficiency alone would appear to warrant. It is true that during the past two decades the rapid growth of the Canadian market and the increasingly compe-

titive business environment has improved the relative cost position of some Canadian producers as evidenced by a slight decline, until recently, in the import share of the market for products of secondary industry. Moreover many witnesses cited the relative improvements in their costs over the past 20 years as compared with their American parent. In some cases the differentials have narrowed quite remarkably.⁵ Nevertheless, the cost disadvantages arising from our smaller volume and the less specialized nature of our production are still very significant and the improvements which have occurred have only in a few industries been marked. Small volume and less specialized production are the main reasons why output per man-hour in Canadian secondary industry is some 35 per cent to 40 per cent below that of the United States.

Canadian Wage Levels

If scale is the main problem for our manufacturers in competing with imports from the United States, the level of Canadian wages to some extent neutralizes the disadvantage. It has been estimated that wages in Canadian secondary industry are some 25 per cent below those in the United States, reflecting a roughly equivalent difference in the per capita productivity of the two economies. The fact that the difference in productivity in secondary manufacturing is greater than the gap in wages, however, means that in this sector unit labour costs tend to be higher in Canada than in the United States.

The converse is true in respect of competition from overseas countries, which are in a somewhat similar relation to Canada as we are to the United States. Although the level of wages in these countries is lower than in Canada — and in some very much lower — so is their average productivity. That overseas competition is not more severe is due to the fact that the great majority of our secondary industries lend themselves to the use of highly mechanized processes and advanced techniques not generally available overseas. Our ready access to American capital, technology and research gives us a significant advantage over most overseas producers in the secondary industry sector. With the exception of those products in which large amounts of relatively unskilled labour are an important part of final selling prices, Canadian unit labour costs in secondary industry are generally below those in overseas countries despite their much lower wages. It is of course in products with a high labour content that the main burden of overseas competition is felt by Canadian secondary industry. The difficulties in these industries, however, can best be understood as a product of the competition for labour between various Canadian industries. In boom times, such as the past decade, industries where physical output per man-hour is increasing rapidly (or where the price of the commodity produced rises faster than the general price level) are enabled to pay higher wages and attract workers from industries less

fortunately situated. These latter industries can retain their labour by paying the going rates, but this increases their costs and compels them to raise prices, exposing them to increased import competition. For these industries, the villain of the piece has not really been the low-wage overseas producer but the rapidly expanding, high-productivity industries in the rest of Canada. Thus we have the paradox of the depressed industry in a prosperous economy.

The wage competition for these depressed industries since the War has not come only from the primary industries such as mining and pulp and paper, from construction, transportation and service industries, but from those secondary industries which have raised their productivity substantially — primary iron and steel, chemicals and electrical equipment. The successful expansion of these and other secondary industries serves to illustrate that the very efficiency of most Canadian manufacturers in the use of complex production processes and modern machinery and their willingness to adopt new techniques and products have combined to develop a high-productivity, high-wage secondary industry. This has caused low-productivity, labour-intensive production to become increasingly expensive in this country, not only as compared to the resource industries, but also to the other and more profitable opportunities available to Canadian labour and capital within the secondary manufacturing sector itself. In fact, this process can be seen at work even within individual secondary industries; for example, the efficient mass production processes used by the largest part of the rubber industry have contributed to the raising of Canadian wages to a level that cannot be paid by the low-productivity labour-using rubber footwear producers without incurring serious import competition.

This competition of industries for labour is just another way of looking at price competition, and is thus a reflection of comparative production costs here and abroad, and of the ability of individual industries to compete with imports. As already noted, the process involves all sectors of the economy, including the rapidly expanding service industries, and has brought about a marked decline in the percentage of the population engaged in marginal agriculture, fishing, and other less productive activities in Canada. It is, in brief, the mechanism by which change and adjustment are brought about in a dynamic economy. The very existence of high-productivity, high-wage labour exerting constant pressure on costs has undoubtedly intensified this competition by impelling manufacturers to improve their management techniques and to replace high-cost labour by increasingly efficient production processes and machinery.

In this sense the rising "cost" of Canadian labour since the end of the War has been a stimulus to industrial productivity; yet it is true that Canadian labour has become increasingly "high-cost" to those secondary and other industries which have not kept pace with the rest of the

economy in raising their productivity. Those secondary manufacturing industries most affected by this process in recent years have been those with a high labour content in the production process; unmechanized labour is unproductive and costly. The number of such labour-intensive industries or branches of industries is however small in the Canadian secondary manufacturing sector, and is continuing to decline as more modern production methods gradually replace labour-using processes in these industries. This is supported by the fact that imports from low-wage overseas countries amounted to only one-sixth of secondary manufactured imports in recent years, equivalent to some 3 per cent of total consumption of secondary manufactured products in Canada; both figures are considerably below their 1929 levels. It should not, however, be thought that the failure of some secondary industries to mechanize their operations is necessarily due to a lack of effort to do so. The president of a large Canadian rubber company, for example, pointed out that extensive research and development work on mechanization of methods had been carried out in the rubber footwear industry for many years, but the manufacture of parts for rubber footwear had proved very difficult to mechanize.⁶ It might be noted, however, that if the market for such labour-intensive products is large enough, it may be possible to apply entirely new production processes which reduce the high labour content of more traditional methods of manufacture. In some cases, therefore, the scale of operations in Canada contributes indirectly to the higher costs of production of labour-intensive industries and processes in this country by limiting their ability to become more capital-intensive. In such cases, import competition tends to come more from the United States than from overseas countries.

We have outlined briefly what we believe to be the two greatest handicaps our manufacturers face in meeting foreign competition. In those products which are mass produced the small size and excessive division of our market tend to make Canadian manufacturing costs higher than those of the United States, despite the higher level of United States wages. In manufacturing processes which are difficult to mechanize our manufacturers face competition from the low-wage overseas countries. Nevertheless, we do not mean to suggest that these two hazards are a Scylla and a Charybdis between which our manufacturers can manoeuvre only with great difficulty. On the contrary, and as the record of growth indicates, the Canadian manufacturer has many advantages in meeting foreign competition in the Canadian market. In the first place he is already here, and the buyer is prejudiced in his favour; availability of advice, servicing and parts, lower transportation costs and a rapid delivery all are factors in the competitive equation. More important, perhaps, is the Canadian tariff, which provides most of Canadian secondary industry with some measure of protection from foreign competition. The extent of this protection varies widely from industry to industry and product to

product. For most secondary industry products the level of tariff protection runs between 10 per cent and 25 per cent.

Other Cost Factors

There are other factors, of course, which affect the competitive position of Canadian industry and which may in some instances have as important an effect as the two we have just cited. Costs of manufacturing materials and machinery are higher in Canada, which is essentially a reflection of higher costs of manufacturing in Canada and the tariff on imported goods; it is really a function of the problem of scale and specialization. On raw and unprocessed materials, on the other hand, Canadian producers appear to be at no net disadvantage. Freight rates also appear to be little different than those in the United States, although the cost of supplying a population living in a long narrow strip of land across the continent undoubtedly raises over-all transportation costs to the Canadian producers; this again is in part a function of the smaller size of our market. The United States market is large enough to permit a degree of geographical decentralization of production which is simply not feasible in Canada. This is a particularly difficult problem for the Canadian manufacturer in serving markets on either coast. At the same time, he has some natural freight advantages in the central Canadian market, and it is difficult to determine where the over-all balance of advantage lies.

The Canadian climate, with its adverse effects on construction costs and seasonality of demand and employment, has been suggested as a factor which raises relative costs in Canada. Against this is the fact that competing United States industry is subject to similar if not quite so severe winter weather, and in addition to more severe summer heat. The greater seasonal swing in our construction industry inevitably raises costs. Clothing manufacturers also have somewhat greater problems of seasonality than their United States competitors; the earlier United States season means that by the time the Canadian season is at its height the American manufacturer may be disposing of his left-over stock on an "end of line" clearance basis in Canada as well as in the United States.

Close to one-third of Canadian secondary industry on an output basis is controlled in the United States, and in such important industries as automobiles and parts, rubber products, electrical apparatus, chemicals and oil refinery between 50 per cent and 98 per cent of total output is produced by United States controlled companies. Canadian subsidiaries can draw on the parent for the results of their research, engineering and process development, and for design and complex parts, as well as for capital, management, advice, staff training, and skilled technicians. In many of the functions carried out by the United States parent such as research and development the economies of scale are very large and the work could not be duplicated by the Canadian subsidiary at any reasonable price.

Access to the parent neutralizes some of the greatest cost disadvantages Canadian producers suffer as a result of their small market, particularly with respect to complex parts. On the other hand, it is argued that the ease of access to American resources inhibits the development of research in Canadian industry and hence slows our growth. The whole question of foreign investment in Canada and its implications is discussed in Chapter 18.

It is sometimes suggested that American management is better than Canadian, which confers an additional competitive advantage on United States producers. Any international comparison of management ability is difficult to make, but it does appear the greater opportunity for diversified training and experience in the United States, and the relative scarcity of managers in Canada, tend to tip the scales in the direction of United States industry. Still, if a gap remains, it is much narrower than it was 20 years ago, and it is continuing to close. It is sometimes suggested also that the attitudes of labour in the United States have been somewhat more receptive to technological and other changes in the past than has been the case in Canada and that this has adversely affected the position of Canadian producers. This again is difficult to prove one way or the other. Costs of borrowing money are higher in Canada. Profits in relation to sales or net worth also appear to be slightly lower in Canada than in the United States. In any event, since interest rates and profit margins are a relatively small fraction of manufacturing costs, small differences here are not likely to have a very significant effect on the relative cost position of Canadian industry as a whole, although they may be quite important in particular industries.

Some industries have been affected more than others by post-war reductions in effective levels of tariff protection. But on the whole the sharply different performance of the various industries has not been due to differences in the levels of the tariff protection. Of course, there have been instances where increases in effective protection have helped to stimulate the expansion of some industries; government purchasing policies respecting the aircraft and electronic industries are a case in point. But generally it has been fundamental economic factors, not differences in tariff treatment, which have caused some industries to lag at a time when others have been growing rapidly.

The record of growth reflects the emergence of this country as an increasingly versatile, skilled, and rich industrial nation. This has raised the productivity, and thus the wages, of labour to a level that cannot be paid successfully by the high labour-content industries. However, the great majority of our secondary industries have been able to adapt their operations successfully to the accelerating pace of technological advance and mechanization and have enjoyed a healthy and vigorous growth. The sector as a whole has fully kept pace with the rest of the

economy in the post-war period. Moreover, most industries have slightly increased their share of the domestic market and improved their relative costs over the longer term. This has been achieved in spite of increasingly competitive conditions in Canada. While there are still a sizable number of complex products which cannot be manufactured here because of the small size of our domestic market, both the range of goods manufactured and the degree of processing undertaken in this country have been considerably extended in the past two decades.

Future Prospects

Essentially the continuing growth of our secondary industry will depend on two factors, the future size of the market for its products and its ability to compete successfully for a reasonable share of that market. We have emphasized that Canadian secondary industry sells most of its products on the domestic market, and the projection of the Gross National Product for 1980 is thus in a very real sense the foundation upon which the estimates given in the study of secondary manufacturing industry are built. For purposes of that projection an average of the various Commission Gross National Product forecasts for 1980 was used; the resulting figure is roughly three times the level in 1953 (the last year for which full manufacturing data were available).

Looking first at the prospective nature of the expenditures which Canadians will be making in 1980 — on capital and consumer goods and services — there is no clear indication that the share spent on manufactured products will rise or fall. However, the experience of the past half century, during which manufactures have become steadily more complex and have absorbed an increasing share of consumption and capital expenditures, suggests that any change in the share would be upwards rather than downwards. Certainly there will be great changes in the demand for individual products, but if the economy is to be three times as productive there is no reason to believe that the demand for manufactures will be less than three times as great as it is now.

The second important variable in forecasting the future development of our secondary industry is the share of the available Canadian market which it is likely to obtain. Here the test will continue to be the ability of our industries to improve their costs relative to those of their foreign competitors. Some industries, of course, are shielded from foreign competition by such forms of natural protection as high transportation costs, as well as by the tariff, and these industries might be expected to grow with the demand for the commodities they produce. At the same time the pace of technology is such that few products will escape competition from substitutes of domestic or foreign origin.

For most secondary industries the effects of the smaller market will continue to be the principal competitive handicap. As the Canadian market

expands rapidly, it might normally be expected that the ability to obtain the maximum economies of scale will also increase. Post-war trends, which show a gain in the competitive position of most Canadian industries manufacturing mass-produced items such as consumer durables, support this conclusion. But the view that as our market grows the handicap of scale will necessarily decline should not be accepted too readily. Our manufacturers are really chasing an objective which is not stationary but moving, and it may be that the current surge of technological innovation — “automation” in all its forms — will result in the optimum size of production units growing faster than the growth in our market. Certainly the evidence presented to date is conflicting; in some products such as television sets the efficient size of manufacturing units has increased sharply in recent years. In other products, such as primary steel, the new techniques would appear to have made economic much smaller production units than were heretofore possible. However, we have concluded that on balance the net impact of the prospective growth of the Canadian market and technical change will be to bring about further improvement in the relative cost position of our secondary industry. Such gains as may occur, of course, will depend in part on the structure of industry that develops. If in many industries we continue to have an excessive number of producers dividing up the relatively small Canadian market, our prospective gains from market growth could largely be dissipated.

We feel less optimistic about how our industry will fare in competing with overseas producers of labour-intensive products. The gap between North American and overseas productivity and wages has widened since the War; a reversal of this trend appears unlikely, which means that more and more the thrust of overseas competition is likely to affect commodities with a high labour content, which are not readily adaptable to mechanized technique of production, and which are not sheltered from foreign competition by such forms of natural protection as high transportation costs, business and consumer preference for North American products, differing engineering standards, speed of delivery and availability of parts and servicing. At the same time such products will be increasingly subject to competition from cheaply mass-produced substitute products. In effect, labour-intensive products will constitute a relatively less important part of the total consumption of manufactured goods, and the Canadian manufacturers' share of this declining market may be expected to fall. However, national prosperity should be judged not from the point of view of any one or even several industries, but from that of the economy as a whole.

There is another factor to be considered, one which up to the present has been relatively unimportant — export markets. As we have pointed out, only about 6 per cent of our total secondary output is exported. Given

a continuation of the kind of a trading world we have seen since the War, an expansion of that percentage seems unlikely. The prospect for exports of manufactures to overseas countries does not appear promising, since any easing of their exchange position would probably be reflected in larger purchases of Canadian primary products rather than of secondary manufactures. If there should be some reduction in United States tariffs against manufactured goods, some of our secondary manufacturers may find markets for their products in that country. Our forecasts, however, are based on the view that in the main it will be the domestic market on which our secondary manufacturers will have to base their operations in the foreseeable future.

To sum up, we expect that the principal factors affecting the growth of secondary industry will be the expansion of the domestic market and the improvement in the competitive position of our producers. While we would expect some small decline in the import share of the aggregate Canadian market for all secondary manufactured products consumed in Canada, in those industries where operations cannot readily be mechanized import competition may become more severe. The secondary industry study makes some attempt to translate these tendencies into arithmetical projections, and concludes that in 1980 the output of secondary industry will be some $3\frac{1}{4}$ times as large as in 1955, and will form about 25 per cent of the total output of the economy, a slightly larger proportion than it does today.

Employment and Productivity

What this rate of growth would mean for employment will depend upon the increase in productivity in the individual industries in the sector, broadly defined as output per man-hour. In the secondary industry study an attempt was made to develop a projected rate of annual productivity improvement for the whole sector, based largely upon the performance of the individual industries in the post-war period. These calculations suggest that we may expect to see an annual rate of increase in productivity in secondary industry of some $3\frac{1}{4}$ per cent, which is somewhat higher than the average of the two assumptions about productivity for the private non-agricultural economy used in preparation of the Gross National Product forecasts contained in this report. As productivity improves through greater mechanization and better techniques, a smaller working force will be required to produce the same volume of output. Of course, employment will also be affected by the average number of hours worked each week; this figure has been falling steadily, and if it continues to decline, as we expect, this would in part counteract the effect that increased productivity would have on reducing the requirements for labour. For purposes of the projections it was assumed that the decline in hours worked will be the same in secondary industry as predicted for the private

non-agricultural economy, or about 18 per cent over the twenty-five-year period.

We hesitate to comment on the degree of confidence that can be placed in the productivity projections. The field of productivity calculation is pitted with all kinds of conceptual and statistical difficulties, and there has been in fact a great deal of disagreement about the extent of our productivity gains in recent years as well as about the methods used to calculate them. Needless to say the area of possible disagreement about projections into the future is much greater. Nevertheless, the pressures of competition tend to bring about productivity gains by increasing the incentives to mechanize. Those segments of an industry which are able to improve their productivity and competitive position by the use of new equipment and manufacturing techniques will be much better able to expand than the industries which cannot. In effect, any industry which lags very far behind the rate of productivity increase achieved by the economy as a whole, even if it is protected from competitive forces by natural protection or by government policy, will find itself losing ground.

On the basis of the above assumptions about output, productivity, and the length of the work week, the estimated secondary industry employment total in 1980 would be about 1,900,000 compared with around 1,100,000 today, although the share of the total labour force employed in secondary industry would be roughly the same as it is now. Gross value of production would be over \$40 billion compared with \$12.3 billion in 1953. As might be expected, the greatest rate of increase is predicted for those industries which have grown the fastest in recent years, and which tend to be capital-intensive and technologically complex — chemicals, electrical and electronic equipment, rubber products, oil refining are examples. These industries have been characterized by the development of new products, by a rapidly growing demand for their products, by a high rate of annual increase in productivity and in general by an improvement in their share of the domestic market. On the other hand, industries with a slower prospective rate of growth tend to be more labour-intensive and characterized by lower rates of productivity gain, which may be expected to expose them to increased foreign competition. The figures of course refer to industries as we know them today. With boundaries between industries becoming increasingly blurred, it may be very difficult in 1980 to draw clear lines of industry demarcation. For similar reasons the growth prospects for any individual firms cannot be predicted on the basis of the prospects for the industry in which it now finds itself.

We see no reason to expect any important change in the present concentration of secondary manufacturing in Southern Ontario and Quebec, although certain urban areas outside these two provinces, particularly in the four western provinces and to some extent in the Atlantic area as well, will continue to attract new secondary industries to make use of

natural resources or as a result of population growth. However, we believe that, because of the importance of achieving maximum economies of scale, secondary industry will continue on the whole to find it advantageous to locate as close as possible to the centre of the Canadian market. Supply of skilled labour will be an increasingly important factor in the location of industry; and manufacturers may continue to find the large metropolitan areas more attractive from this point of view, despite such offsetting disadvantages as higher wages and traffic congestion. Finally, industry tends to be reluctant to move from established locations unless the incentives to do so are considerable. There will be exceptions, of course, but most of the studies and most of the briefs of individual industries seemed to support this general conclusion.

The mechanization and growing capital-intensity which will accompany the expansion of secondary industry, together with the increasing complexity of the machinery and electronic regulating devices, inevitably will result in a continuing rise in the demand for labour with specialized skills and for trained management personnel. The problems arising out of these needs are dealt with elsewhere in the report. It is, of course, essential to the welfare of the sector that these problems be resolved. Otherwise shortages in the supply of managers, engineers and skilled technicians might prevent it from achieving as rapid a rate of growth as we predict for it.

Summary and Conclusions

The picture we have presented here of the developments we expect in secondary industry over the next twenty-five years is abbreviated and subject to many qualifications. Nevertheless it is reasonable to assume that profound changes will not occur in the nature of the economic forces which have shaped the growth of secondary industry for the past few decades; our optimism about the future of secondary manufacturing industry is perhaps coloured by the way it has grown in importance in the economy in the past quarter century. At the same time we should not like to minimize the fact that the prospective growth will not be shared equally by all industries, and that indeed the future may present some secondary industries with serious problems. Even those industries which we expect to grow more rapidly than the average will continue to face the handicap of producing for a relatively small market. The achievement of the kind of growth in secondary industry that we expect, however, is not something that can be assumed to occur automatically. Secondary manufacturing industries will have to continue to show a vigour and enthusiasm for adopting new products and techniques at least equal to its performance over the last decade.

It would seem logical to us that industry should be encouraged to organize itself as efficiently as possible to serve the relatively small market in this country. We have said that one of the problems facing

the industry is the excessive division of the market, which has aggravated the problem of scale for each of the firms involved. A reduction in the number of firms in many industries, with production concentrated in fewer but more specialized plants, could lead to lower costs of production and hence to lower prices for the consumer. A number of manufacturers have suggested that they would welcome developments along these lines, but they believe that a reduction in the number of Canadian producers of any important product might expose those who remain to prosecution under the Combines Investigation Act. Whether or not such would be the case is difficult for us to judge, but it is a view which is fairly widely held. In the circumstances, we suggest that the Restrictive Trade Practices Commission, in judging whether or not any concentration of production in fewer hands is in the public interest, should give considerable weight to the importance of secondary industry achieving the maximum possible economies of scale. Moreover, if the combines legislation as presently drafted stands in the way of a desirable concentration of production, then consideration should be given to some modifications in the Act.

We are fully in accord with the principle that monopolies and cartels should be effectively policed, but it is a relevant consideration that few secondary industries anywhere in the world are exposed to such severe important competition as that experienced by Canadian industry. This import competition provides some safeguard against exploitation by domestic monopolies or cartels.

Having in mind the increasing need of secondary industries to mechanize their operations, if they are to remain competitive, we suggest these industries be allowed to write off over a very short period their capital investment in machinery, equipment and factory buildings. (While this is suggested to encourage secondary industry to keep its equipment and factory buildings modern and up-to-date, such provision could also be applied to other industries.) We believe this would be a useful and effective incentive for reducing costs and increasing the ability of secondary manufacturing industries to compete successfully with imported products. And as the capital assets of the industries in question can only be depreciated once for tax purposes, there should be no appreciable loss in government revenues over a period of years. The timing of such measures intended to assist the manufacturing industries would, of course, be of importance. Their implementation would need to be reconciled and integrated with other policies designed to stimulate or to restrain economic activity throughout the country. It would also be of considerable help in some manufacturing industries if large buyers, including all levels of governments, the railways and public utilities, made a practice of discussing their prospective requirements and their capital expenditure programmes well in advance of the actual placing of orders. Closer liaison

of this kind would make possible a more efficient spacing of production and would lead to lower production costs. It would also be desirable, in our opinion, in view of the growing size and complexity of Canadian manufacturing operations, to increase the number of officials in the Federal Government service having detailed knowledge of manufacturing industry. In this way, liaison between government and industry would be improved and more information about the position and problems of the manufacturing sector would be available to the Government.

THE SERVICE INDUSTRIES

FEW PEOPLE HAVE noticed the way the service industries have been growing. Other sectors of the economy continually dazzle us with their array of achievements — vast sources of energy harnessed, fabulous mineral wealth laid bare, broad links of communication forged, innovations which revolutionize production, and ingenious wares to satisfy our needs and pamper our fancies. Sometimes, too, these sectors catch our eye because they raise problems which make them the object of public policy. But the service industries, which do not mine, generate, grow, or manufacture a product, seldom shout their advances and rarely become a problem for legislators. Yet this sector includes a larger share of our working force than any other sector of the economy, and this share has been growing rapidly. Table 13.1 outlines the various occupations falling within the term “service industries” (as defined and presented in the special study of them that has been prepared for us*) and summarizes their growth in terms of numbers employed from 1881 to 1951. Throughout the last three-quarters of a century, the service industries have increased their manpower at a rate that has averaged 3.5 per cent yearly, so that they now employ more than 35 per cent of the total labour force compared to 15 per cent in 1881. For the services to have grown so much is in keeping with what is happening in advanced countries all over the world, where workers are being drawn toward this sector. It is a growth that is connected with profound changes in our way of life — our tastes, our educational level, our habits of work and play, our urbanization, our technology, our increasing interdependence, our rising standard of living.

Recent Growth and Change in the Service Industries

This growth, for all its obscurity, has been one manifestation of a social transformation which has changed the face of Western society, and as in all such upheavals it is difficult to disentangle causes and effects. Still, there are a few clear trends which account in part for the expansion of the services, though this expansion in turn has often added new impetus to these trends. There has been a greater demand for services as our wealth and knowledge have grown. The increase in

* It should be noted that the occupational coverage of the special study on *The Service Industries* and of this chapter does not coincide with that adopted in a more general study prepared for us on *Output, Labour and Capital in the Canadian Economy* and used elsewhere in this report, notably in Chapter 17.

Table 13.1

GROWTH OF THE LABOUR FORCE IN THE SERVICE INDUSTRIES

Year	Service industries total		Trade wholesale and retail trades, manufacturers' branches		Finance including banking, lending companies, insurance, real estate		Professional services including the professions, education, health, tourism		Government services federal, provincial and municipal employees, the armed services		Personal services including domestic servants, laundries, dry-cleaners, hotels, barber and beauty shops, restaurants	
	No. of workers	% labour force	No. of workers	% labour force	No. of workers	% labour force	No. of workers	% labour force	No. of workers	% labour force	No. of workers	% labour force
1881....	213,000	15.5	78,000	5.7	1,000	0.1	48,000	3.5	8,000	0.6	78,000	5.7
1911....	693,000	25.4	265,000	9.7	18,000	0.7	121,000	4.4	77,000	2.8	212,000	7.8
1931....	1,182,000	30.2	388,000	9.9	92,000	2.4	266,000	6.8	114,000	2.9	322,000	8.2
1951....	1,895,000	36.6	696,000	13.4	143,000	2.8	452,000	8.7	295,000	5.7	309,000	6.0

SOURCE: *The Service Industries*, 1956, a study prepared for the Commission by the Bank of Montreal, Chap. 2, Table 1, pp. 5-6.

the production of manufactured goods has resulted in a larger demand for the services of the distributive trades, of the financial world, and of some professions. Increased knowledge means that many tasks which were formerly carried out by non-specialists are now sufficiently technical that they are better given to specialists who often fall within the service classification. It also means that more people are needed in education to pass on this greater store of knowledge. On the supply side, there are reasons why workers are attracted to this sector, despite a level of pay which is often lower than they could obtain elsewhere. Some jobs in the service industries are attractive to certain workers because they make small intellectual or small physical demands. On the other hand, many other workers come into this sector just because they can find jobs here which will make greater use of their talents and training. The conjunction of these — and many other — forces of demand and supply explain in some measure why the services have expanded so greatly. We shall now see how the services have changed during their expansion.

One of the most important changes has been in the structure of the service industries. It used to be that almost all the undertakings in this sector — except a few such as wholesaling and finance — were the work of small independent proprietors and partnerships. If a newcomer with a small amount of capital, a very little knowledge of the trade, a spirit of enterprise and a desire to be on his own wanted to establish himself in the service industries, he had a good chance of succeeding. But now signs of bigness are appearing which make the position of the newcomer more difficult. The size of the average business unit in the service industries has increased considerably, and the growth of some firms has been astonishing. Groceries, drug stores, department stores, moving-picture houses, newspapers, hotels and many other activities which were once almost the preserve of the small businessman, are now often part of vast chains of similar businesses. Other types of business which are not usually organized into chains have notwithstanding increased their size. Independent proprietors now own larger firms than they used to; the expansion of the government service is common knowledge; partnerships in the professions are becoming more usual, and the size of partnerships is growing; and looser associations of independent firms are being formed which, though they may sometimes prolong the life of the small firm, are more often the beginnings of larger single firms. In the face of competition from such large units, the small and independent businessman has been hard pressed, and has sometimes had to yield. The newcomer, who must buck the experience, the economies of scale, and the easier access to capital of the larger and established firms, thinks more carefully before going into business in this sector; he knows that he will have to be shrewder than his predecessors.

A new breed of workers is appearing, too. They are skilled in the operation of power laundries, in medical art, in running electronic computers, in market analysis, in arranging safaris into Central Africa, in coining advertising slogans, and in countless other jobs which used to be carried out — if at all — in a much less professional manner. Very often, they have acquired their skills in the course of doing a job that is more specialized than in the past; they have therefore become expert in one part of the activities of their firm instead of looking after a number of jobs and doing none of them so well. But these skills may also have been learned through more formal training. Sometimes they paid for their own training in one of the many types of schools which cater to the need of the service industries for more skilled personnel. Or they may have been trained by an employer at his expense in one of a growing number of “in-plant” training programmes. As this sector becomes more specialized and technical, they are finding that such training is more and more important to their work. Trade unions find that it is now easier to organize workers in the service industries. When the units of business were smaller and the workers mostly unskilled and transient, union organizers had little success. But now, with the coming of larger firms and highly skilled personnel, it has been easier to persuade workers to join unions and to persuade management to negotiate with the unions. Already, more than 12 per cent of workers in the service industries, as we have defined them in this chapter, are trade union members and most of them are covered by collective agreements. In some special service industries more than half of the workers are organized; in the entertainment field almost all workers hold a union card and pay dues. We think that this trend toward unionization will continue, since the forces which underlie it — bigness and increasing skill or professionalism — will become, if anything, more compelling.

But it would be misleading to say that the service industries are now or soon will be dominated by large firms, highly trained personnel, and trade unions. These are only the directions in which this sector is moving. Today in all but a very few service industries the man with little capital and little specialized knowledge still has a chance to succeed, and, although he may be more and more handicapped in certain types of business which will become the preserve of big firms, he will find a large range of ventures open to him in the future. True, only the large firms will be able to take advantage of some of the labour-saving innovations which we expect to occur in this field, and this will increase their competitive advantage over the small businessman. But we do not expect their advantage to be greatly increased in many cases. Many innovations will be adaptable for use in smaller firms; others will be made more flexible so that they can be used for a variety of smaller jobs instead of just one large job; and some will be as useful to the small firm as to the big. Moreover, large and established firms with labour contracts, pension

schemes, and investments in plant and equipment, may sometimes find their movements restricted when they want to innovate, and this fact will favour the smaller firm. Thus although the importance of the small businessman will not be so great in the service industries as it has been, we expect him to continue to do a large share of the business in this sector, and to be more prominent here than in any other part of the economy. Nor will labour go so far as in other sectors in organizing its workers or in requiring mainly highly trained workers. Students, housewives, transients, casuals, and unskilled people will contribute, as they always have, an important part of the manpower in this sector; and they will join a labour union less often than their fellow workers in other sectors. If the present trend is toward bigness and professionalism, this trend has barely begun, and, we think, will never be completed.

Although the service industries have been growing they show one surprising feature: in relation to other sectors of the economy they are contributing about the same proportion of national income today as in 1926, while the number of persons employed in these industries has risen substantially. The study prepared for us on *The Service Industries* shows that in the intervening years their contribution has fluctuated widely, contributing more than half of our national income in 1931, while 20 years later, in 1951, their contribution was a little more than a third.¹ Of course, the absolute amount of income originating in the service industries has been increasing over the years. This was inevitable with more and more people employed in this sector. However, employment and remuneration in the service industries both respond less quickly and less markedly to economic fluctuations, and thus are higher than the general average in bad times. In 1931, a depression year, therefore, it could be expected that employment and remuneration would fall off less in the service industries than in the country at large. There is, it seems, a deep-lying trend that dictates that the service industries will employ more and more of our working force and at the same time not increase their relative contribution to our national income.

For the services have failed to increase their productivity as quickly as other sectors. The Canadian labour force as a whole has become much more productive in the years since the War. But this is a composite increase in productivity, which is made up of very disparate parts. In agriculture and the resource industries the increase has been most pronounced and in secondary industry it has been about average. In the service industries, however, as far as one can tell the rate has been less than average.² We do not have to look far to find the reasons for this disparity in changes of productivity. Since the Industrial Revolution, agriculture and industry have benefited from countless innovations designed to perform the traditional tasks with less manpower or to perform new tasks which were previously impossible or uneconomic. The application

of these inventions has been the cause of rapid increase in productivity in these sectors. But the services have not been so blessed. Many of the jobs in the service industries are today almost as tedious as they were in centuries gone by. To write a newspaper article takes about as long today as it ever did. University graduates are not more easily produced now than they were in the old days. The writing and producing of a stage play must involve as much effort and worry today as in the eighteenth century. For it is of the very stuff of many of the service industries that they call, more than other sectors, on talents which only human beings can give; imagination, a sense of humour, taste, creativeness, judgment . . . and just the personal touch. As yet these services are not offered by machines in a satisfactory way; we doubt that they ever can be.³

To be sure, there have been many advances — some of them striking. New skills, new methods of organization, and new inventions have all kept productivity rising in the service industries, and in many fields the changes have been revolutionary. The restaurateur devised the cafeteria to save labour in serving his customers. The doctor of today can cure many diseases in a fraction of the time his predecessors took, and can prevent others from occurring at all; with the help of new equipment and knowledge he can perform delicate operations which a few decades ago would not have been attempted. The accountant saves precious hours of skilled labour by organizing the bookkeeping systems of his clients so that checks are, to an important extent, automatically carried out. The wholesaler has found better ways of planning his warehouse and now uses machines for many jobs which were once manual. Almost every service industry has changed greatly since the turn of the century. And if, in certain service industries, it has not been possible to increase productivity significantly, there have often been technological improvements which have enabled us to by-pass these areas. The live entertainment industry has not been able to increase its productivity very much, if at all; but moving pictures, records, radio, and television have allowed a single performance to reach audiences all over the world, and to be repeated as often as wanted. Similarly, when it seemed difficult for barber and beauty shops to increase their productivity, new preparations and gadgets were invented which make it easier to shave beards, cut and wave hair at home. Laundries have lost trade to the home washing machine, especially after the invention in post-war years of a variety of new materials which are more easily laundered. The decrease in the number of music halls, cinemas (as a result of television), barber shops, beauty shops, and laundries in recent years testifies to the failure of these industries to raise their productivity significantly; the functions of these industries are still carried out, but with the help of inventions they have been removed on a considerable scale from the service sector to the home. On the other hand, the rise in cost and deterioration of quality in many repair

services have led consumers to replace old shoes, cars, houses and many other goods with new ones sooner than they once did; and manufacturers are making their products out of materials which require repairing and servicing less often. In this case the function has shifted somewhat from the service sector back to the manufacturer. By and large, however, we have not needed to by-pass the service industries. They have kept their productivity rising enough so that their importance as a sector has increased, and we think they will continue to do so.

But we would not want to paint in too extravagant colours the changes which will occur in the service industries by 1980. New skills, new methods of organization, and new inventions will continue to be devised which will perform the traditional tasks more efficiently and enable us to tackle new problems; the techniques which are already known will be used more widely. No doubt in certain areas the changes will be almost as dramatic as science fiction leads us to believe: electronic machines will, we think, run the more modern warehouses of 1980; process complicated data in banks and insurance companies which now employ large clerical staffs for this work; and perform simultaneously complicated bookkeeping operations relating to cost accounting, inventory control and invoicing. Thus, the machine, so long accused of degrading the worker and divesting his work of its individuality, is now liberating him from much of the monotony of humdrum tasks, and creating new tasks which will often be closer to the limits of his abilities. But we should not hope for too much. Innovations will not affect some sectors of the service industries; in other sectors it may prove practical to adopt them only in the larger firms; and in all sectors it will take time for existing and new techniques to filter from the imaginative and daring at the top down to the broad base made up of average and sometimes unprogressive firms. For these reasons we think that the changes in the next twenty-five years will be more often gradual than dramatic, and that they will not keep pace with changes in other sectors.

Glimpses at Some Service Industries

We have called attention in other chapters to the great diversity encompassed by certain sectors of the economy. Large differences in size of units, in profit margins and wages, in types of products, in methods of work, and in productivity lie behind over-all averages and trends; without being aware of these differences, we cannot fully understand what the statistics mean. This is perhaps more true of the service sector than of any other. Embracing the wholesale and retail trades, finance, insurance, real estate, community and public services, entertainment and recreation, the professions, and a host of other business and personal services — to mention only the broad classifications — the service industries can claim a variety which increases year by year. The result is that almost no general-

ization can be made about this sector without qualification. Our discussion in the previous section of the growth of the working force employed in the service industries is but one example. Although no trend is more evident than the flow of workers into this sector, many service industries have not shared in the expansion. Coopers, blacksmiths, peddlers, scullery maids, coachmen, and many other worthies have almost disappeared from our lives; and clergymen, lawyers, and dentists, who are still very much with us, have for one reason or another failed to increase their numbers as much as population. Even in those activities which have been growing most quickly, many individual firms have dropped out of the race; for the service industries have the highest rate of failure in the economy, and failures are frequent in the expanding areas. If even the most obvious truths about this sector must be qualified, how much more cautious must we be of generalizations which are more obscure!

To remedy in some small measure the oversimplification which comes from considering all the service industries together, we shall, therefore, look very briefly at a few of the more important activities in this sector. We have chosen the wholesale and retail trades, banking and finance, the professions, the government services, and the personal services. Although these parts of the service sector are here to stay, they are all undergoing changes in an effort to do their jobs more efficiently and to meet the new demands being made of them. It is with the nature of these changes that we shall be most concerned.

a) Wholesale and Retail Trade

The high costs of the wholesale and retail trades have from time to time attracted the curiosity of economists and the indignation of the public. In 1939, a study was published in the United States which claimed that 59 per cent of the amount paid by Americans for finished goods represented costs of distribution — what was charged for selling and transporting raw materials, capital goods and, finally, finished goods themselves.⁴ We can think of no reason why, in 1939, distribution costs in Canada should have been a smaller proportion of the total expenditure on finished goods; and since that year the proportion has probably risen in both countries. For, as another study in the United States has shown, efforts to increase productivity in the distributive trades have not been crowned with as much success as in other sectors; in fact productivity has probably increased less than half as quickly as in manufacturing and agriculture.⁵ With wages rising in this sector as elsewhere, the result has been on the average a constant — or even slightly widening — spread between the price charged by producers and that charged to consumers. Hence distributors have been accused of either profiteering or backwardness. But in fact profits are seldom excessive in the wholesale and retail trades and, as we shall show, great enterprise has been displayed in keeping costs down and offering more varied services.

Although most Canadians have frequent dealings with the retail trades, few realize that the present abundance and variety of shopping facilities is of recent date. A hundred years ago, the standard retail outlet in Canada was the general store which sold under one roof all the needs of man and beast for a price that was open to spirited discussion and that was paid more often in kind than in cash. Since then retailers have been busy cutting costs or adding new services, so that the trade today has changed unrecognizably from its counterpart in the middle of the nineteenth century. First to come were the department stores, which, though they were in some ways only an expansion of the general store, introduced several innovations which lowered costs: they abolished credit and payments in kind in many cases; they sold only at one price; they dropped groceries from their range of goods; and they more often bought from manufacturers where their predecessors had bought through intermediaries. These economies allowed both the cutting of margins and the expansion of inventories in the remaining lines stocked. Soon afterward, the chain store made spectacular gains by carrying much farther some of the innovations of the department store — bulk-buying direct from manufacturers, greater volume sold at a smaller profit margin, and a further reduction of some of the more costly services provided to customers. The chain stores later began self-service stores which were able to lower margins still further because their sales staffs were greatly reduced. The mail order store also rose during the last century; by offering the service — paradoxically enough — of eliminating the need to visit a store to make a purchase, and by cutting margins through, first, doing away with the heavy costs of showrooms and, second, appealing to a national market instead of a local one and thus increasing volume, it was able to capture an important part of the wholesale and retail trade, especially in rural areas. The flow of population into the cities and the appearance of easier means of access from the country to the cities later reduced the sales of these stores and forced them into operating chain and department stores as well; but even today they remain important retailers in outlying regions and, to a surprising degree, in large cities too. Finally, the post-war era brought a rash of new forms of retailing to rival the old ones: surplus goods stores, shopping centres, warehouse sale and discount houses. These may cut costs by increasing their volume so that they can buy in bulk from manufacturers at reduced prices, thus eliminating the profits of intermediaries and lowering the overhead cost per sale. Or they may cut costs by offering the customer reduced services — no credit, no delivery, no guarantees, no repairs, no showroom, or a limited choice. It is true that as each revolutionary form becomes established it often takes on some of the trappings of its conventional competitors: services which had been eliminated are brought back, and margins begin to rise. But so competitive and enterprising are the leaders in the retail trade that new types of retail outlets will certainly be launched whenever a chance of

cutting costs appears. If margins do not fall over the long run, it is because the remaining costs are rising as quickly as productivity.

Manufacturers have been scarcely less active in finding ways of channelling their goods more efficiently to retailers and consumers. A few have found that their products — mainly sewing machines, vacuum cleaners, encyclopedias and brushes — can be sold with startling success directly to the consumer in his house. Manufacturers of goods used by large industrial and commercial companies have also sometimes been able to sell directly to users. But usually manufacturers have to channel their flow of production through a more devious network of distribution in which the consumer is serviced by a retailer, and the retailers and industrial users are serviced by one or several intermediary jobbers, brokers, commission agents, or wholesalers. In an effort to come closer to their users and simplify this network, manufacturers of many products have found it worth while to establish branch offices which distribute their own products. This results in lower costs of distribution in many cases, and also offers other advantages. Those who manufacture highly technical products find that their own trained salesmen understand the product better than other intermediaries, and can see how it can be adapted to the user's special needs; those producing perishable or fashion goods find that the greater speed of a more direct distribution reduces the risk of loss; and those who turn out a large range of products, many of which would individually bring little revenue to a distributor, find that they have a tighter control of sales if they distribute through their own branches. Thus, although sales through manufacturers' branches have been increasing for almost every kind of product and now account for perhaps a third of all sales by manufacturers, they have increased most spectacularly in chemicals and drugs, lumber and building materials, machinery, and pulp and paper products.

The middleman has, therefore, been losing trade. Traditionally, he was dependent on the small retailers and the small manufacturers who needed intermediaries because of the limited scale of their operations: retailers were too small to buy in bulk directly from manufacturers, and these, in their turn, were too small to afford their own distributive network. But with the increase in the size of many units in both retailing and manufacturing, the middleman has been crowded on both sides. On the one hand, retailers are increasing their volume enough to reach back directly to manufacturers; on the other hand, manufacturers have expanded their own branch offices and are selling more of their output directly to retailers and commercial users. The middleman has thus ceded much ground that was traditionally his, though the greater part of our commerce still passes through his hands. Faced with the likelihood that these trends will continue, he has tried to make his services cheaper and more desirable to his clients. He has, in some cases, reduced the services he gives in order to cut costs:

credit, delivery, and visits from salesmen have often been supplanted by cash, carry, and telephone orders. In other cases, he has added new services which were especially wanted by the retailers; these include help with layout, stock control, training sales clerks, and advertising. He has organized co-operative chains of retailers who pool their orders, and the larger volume of business enables him to get lower prices from manufacturers as well as to cut margins. Finally, wholesalers are learning to organize their warehouses more efficiently and to make a greater use of machinery in them. All these measures should help to check the decline in the role of the middleman. Certainly, in distributing food and groceries, hardware, and drygoods — lines in which either the small producer or the small retailer is still prominent — he should continue to play an important role. But even in these areas he will lose some control, and in other areas his losses will be greater. Moreover, he cannot expect to share proportionately in the increase in consumption which will result from our higher standard of living; for durables, which will represent an increased percentage of consumer expenditure in the future, are quickly eluding the network of intermediaries. Thus the functions which the middleman used to perform are shifting significantly to other groups in the economy. From being the most powerful man in trade a hundred years ago — the man who told manufacturers what to make and retailers what to sell — he will have to step down to play, in the future, a more limited role.⁶

b) Financial Institutions

Just as the distributive trades channel goods from those who produce to those who consume, so our financial institutions channel money from those who save to those who borrow. But the two intermediary businesses are organized very differently. Where the wholesale and retail sectors, as we saw, are still open to newcomers backed by modest amounts of capital and, despite the rise of some large retailers over the past century, still abound with small businessmen, the banking industry, the largest of our financial institutions, has been carried on in Canada by a few large and established firms operating an extensive network of branches. At present there are ten chartered banks in Canada, of which nine were in business 80 years ago and the tenth is owned by a European bank of long standing. Other banks founded over the last 80 years have merged with the existing banks or have gone out of business; they have found it difficult to compete with the experience, larger capital, economies of scale, and the more diversified risks of the larger firms. This is not to say that banking in Canada is not competitive. Indeed, there is keen competition in services and location between branches of different banks and even between different branches of the same bank; and as the number of branches — after being cut back during the depression and during the Second World War — will probably grow to be 50 per cent larger in 1980 than it is now, this competition will be intensified.

Nor are the chartered banks the only financial institutions which channel savings to borrowers, though they are the largest. We have, in addition, a wide variety of other institutions each serving a somewhat different group of clients. Life insurance companies provide not only protection but also an outlet for personal savings. Indeed, life companies have absorbed a substantial part of Canadian savings in the past, and their growth has been fairly steady where that of some other institutions has been spasmodic; we expect them to continue their regular growth in the future. There are also trust companies, which administer estates and trusts, in addition to managing guaranteed funds into which clients can deposit savings; both of these activities should expand considerably in the years up to 1980. There are almost four thousand credit unions; and these, although they account for a small part of total savings, are growing rapidly. There are savings banks and offices sponsored by the federal and provincial governments, and these have grown with the economy. There are at present ten loan companies which deal largely in mortgages; owing to the competition of other financial institutions in the mortgage field, they have suffered a decline in recent years, but we expect the larger ones to continue to prosper. There are personal loan and instalment finance companies which are now providing an increasing proportion of the growing volume of credit used for the purchase of durables. Finally, there are a host of private and semi-private arrangements which by-pass the established financial institutions and which often escape statistical notice; in the past such loans have been of considerable importance, and they will probably be no less important in the future. Such, then, is the profusion of intermediary institutions through which borrowers are brought in contact with lenders.

c) The Professions

The professions — those occupations which require a long period of formal training — have been growing and changing no less than other service industries. It is true that some professions, such as law and dentistry, have not increased as rapidly as population over the last 25 years at least. But most of the traditional professions have grown more quickly than population, and new professions abound. They have all moved toward more elaborate professional and pre-professional training, and toward greater specialization within the ranks of the profession. We think that these trends will continue. As the needs of the economy — not to mention our own personal needs — become more complex in the wake of scientific discovery and increasing wealth, jobs which were once carried out by amateurs relying on common sense or by unspecialized professional men will be increasingly performed by specialists. The result is that in most professions partnerships are supplanting individual practices, and the size of partnerships is growing; this grouping together of professional people allows a division of labour in which each partner can specialize in some

phase of the work. However, a greater proportion of those men and women entering the ranks of the professions will not go into private practice, but will work as employees of large business and government organizations in which the services of professional men are becoming increasingly necessary.

d) Government Services

Federal, provincial, and municipal government employees have also increased their numbers greatly; the public service today is more than 13 times larger than it was at the beginning of the century. We think that growth will continue at a rate slightly higher than that of the entire labour force, and have predicted that the public service — exclusive of the armed forces — will be more than double its present size in 1980. Although the size of the armed forces in such a distant year is less easily estimated, it would be unreasonable at present to hope that they could be reduced much below their present level; on the other hand, for the reasons given in Chapter 6 it may be that further increases can be avoided. The standard of public service in Canada at present is undoubtedly high, but there are signs that young men and women who are interested in this kind of work are being lured into other sectors by more attractive jobs. A more vigorous recruitment programme seems necessary to attract men and women at the junior and intermediate levels. Equally important, able men and women should not be held back to the rate of advancement of the mediocre, nor assigned to work that is mostly routine; they should be given the position and the tasks which are in keeping with their abilities. With such policies, the government services should be better able to fill their requirements on the junior and intermediate levels, and to train within their ranks more of the administrators and specialists needed for senior posts.

e) Personal Services

Unlike other service industries, the personal services have not been growing; there has, in fact, been a decrease in the number of workers in this area over the last 15 years. Only restaurants and taverns, hotels and motels, and drycleaning establishments now claim more workers than they did in 1941. The other main activities — laundering, barbering, hair-dressing and domestic service — have all declined markedly, and the more fugitive personal services such as gardening, window-washing and shoe-shining have probably gone the same way. These trends reflect a mixture of economic forces. As levels of income have risen, the demand for more of these personal services has increased. However, as the improvement in productivity in the output of personal services has lagged behind that in other sectors of the economy, personal services have become relatively more expensive; and this has restrained the consumption of such services. Furthermore, there have been marked technological advances in such home appliances as laundry equipment; this has spurred the use

of such equipment in the home and has consequently limited the demand upon establishments providing laundering and similar services commercially. People now have more time to prepare meals, look after their hair and to dig their gardens. These forces have combined to restrict the growth in output of personal services and to limit the growth in employment in such occupations.

The Future

In the complex world of 1980, the same service functions will have to be carried out as in the most primitive and antique ages of human history. Distribution of produce, borrowing and lending, advice from experts, education, care of the sick, government, defence, cooking, personal care, and all the varied service activities of yesterday and today will be part of the world of tomorrow. But we have shown that there are forces which play upon our society and draw some of these functions into and out of the market, into and out of the service sector, or into one service industry and out of another. There are also forces which change the value people place on these functions, so that they are carried out with greater or less vigour than before. We have been living, since the eve of the Industrial Revolution, under the sway of forces which have brought, on balance, more and more functions into the service industries and increased the value which is placed upon them. True, a few functions have left this sector or have shifted from one service industry to another. But if we are to advance, we must leave some things behind: some of the familiar sights will disappear from view and new vistas open up, but as we move forward, we shall grow accustomed to seeing the landscape change.

In looking into the future, we see no reason why the growth of the service industry should not continue at about the same rate as in the past, and along the same lines. We have predicted that the number of workers in this sector will increase by more than 3 per cent yearly, and this will mean that 4.5 million people, or 45 per cent of the labour force will be employed in this sector by 1980. This is far more than double the present size of the working force in the services. It is almost twice the size of the anticipated labour force in primary and secondary manufacturing together, and six times that of agriculture. Although different areas of the service group will grow at different rates, and some will not grow at all, we think that the working force in each of the broad categories will increase at roughly the same rate. Distribution, finance, and government will grow just slightly more quickly than the service sector as a whole; and the personal services will lag slightly behind, but (owing to a rapid expansion of restaurants and motels) will no longer decline. The other broad sectors will grow at about the average rate. In narrowly defined areas, growth and decline will be more spectacular. For example, the number of employees in health, higher education, engineering, and retailing, will

increase much more rapidly than in other service industries; while those in wholesaling, domestic service, the armed forces and hairdressing will grow much less quickly, and may even drop off in numbers. More detailed estimates of the labour force in some service occupations are contained in two studies prepared for the Commission.⁷

As we have explained, productivity will not rise so rapidly as in other sectors; however, we have concluded that it will not lag so far behind that of other sectors that the contribution of the services to national income will fall below its present level. This estimate was formed after balancing many hopes and doubts about the future. It is not easy to decide what improvements will occur in the service industries, and how far and quickly they will be adopted. No one can say where the wand of innovation will next touch. However, certain places are favoured and these include areas which have been more backward than other parts of the economy and where, as a result, rising costs put pressure on businessmen to innovate or else be by-passed. For this reason we think that the service industries, the laggard sector, will share in the bounties of future increases in productivity. But innovation also favours large business units which can support expensive research projects and can afford the large investment in capital goods which may be required. This is perhaps more true in the service industries than elsewhere: in these industries many innovations have been devised by the larger firms and then sometimes copied by the smaller ones. To overcome the disadvantage of their relative smallness, a few firms have tried pooling resources to finance a single research project or establishment; this idea will probably become more widespread. But we see no reason to hope that the services will be much more favoured than in the past by innovation and have therefore not predicted any great changes in present trends. In any case, little innovation in this sector is likely to come from Canadian firms in the future; we shall still be almost as dependent on foreign ingenuity as in the past. It remains, therefore, to ask how quickly and how far we shall go in adopting the innovations of other countries.

At the beginning of the Industrial Revolution, the adoption of known techniques proceeded at a very slow pace. Then, as people became more used to the idea of change, the interval between the invention of a new machine or technique and its use gradually narrowed. Today, the economy is pervaded by an enthusiasm for new ways of increasing efficiency which will probably become even more intense in the future. Trade journals, business and professional schools, consulting firms, employee training schemes, conferences, and a host of other media of communication all allow businessmen to pool new information and share new experiences. These trends will accelerate the adoption of innovations and increase productivity. But many of the smaller firms in the service industries — and some large ones, too — have not kept abreast of new techniques that would make them strikingly more efficient, and it may be some time

before they are exorcised of their mental block against change or forced out of business. We can only hope that in the future they will show a greater willingness to accept the gifts that come their way.

It is possible, too, that productivity will be held back because the services cannot find enough men and women with the needed skills. We expect that workers will be released from some areas of the service industries and from agriculture, and that a larger proportion of the young people coming onto the labour market will choose to enter the service industries. These men and women should provide the labour force with which this sector can expand. But will they have the technical skill needed in the service industries of the future? Of course, there will still be — there will always be — many jobs in the service industries for unskilled workers and for workers possessing the conventional skills: we do not expect that office boys, receptionists, typists, and clerks will disappear from the office of 1980, though they may be used more efficiently. In addition, some routine but difficult tasks which today require skilled labour will become unskilled jobs through the use of machinery. But the demand will grow for people more highly trained in the conventional skills or possessing entirely new skills. To take only one example, we have mentioned that we expect that automatic processing machines will take over a large part of the routine clerical work in insurance companies and banks. Although many clerical workers will become superfluous in such a changeover, other types of more highly trained workers will be needed: “tapers” and “programmers” who have the training in mathematics needed for putting questions in terms meaningful to machines and for building into the control all the criteria necessary for making decisions; repair and maintenance men who are skilled in electronics; monitors who can pick up inconsistencies and remedy them quickly; and people in management who understand both administrative technique and the workings of these machines. Thus the introduction of automatic processing machines will make demands for a wide variety of personnel with skills which are almost non-existent today. And this is but one example. We expect that in almost all the service industries and at almost all levels more highly trained personnel will be needed: there will be a general “upgrading” of workers and management. Where will this specialized manpower be found?

We shall have to tap all the traditional sources. Despite our heavy losses in skilled and professional workers through emigration to the United States, immigration since the end of the war has brought us far more trained manpower than we have lost.⁸ Indeed, the proportion of skilled and professional manpower among immigrants has been substantially higher than among the Canadian population as a whole. However, we think it would be unwise for Canada to rely on immigrants in the future, as much as it has in the recent past. There is some

evidence that the proportion of professional people amongst immigrants is falling, while it is rising amongst emigrants, and we think this trend may well continue. Moreover, it is possible that immigration will not bring us a very large number of men and women trained in certain skills and professions which will be in greatest demand in coming years. To some extent, employers will have to fill this gap, as they always have. They have been training more and more of their administrative and sales personnel either by offering training programmes on the premises or by sending them to special schools; such schemes have proved their worth so clearly that we feel they are certain to become more widespread. In addition, employers have been responsible from the very beginnings of industry for training apprentices alongside skilled workers, and this has been an important source of trained manpower. Though apprentices will continue to be taken on in some areas, we expect that their number will become smaller and that few of the skills needed in the service industries will be learned this way. For increasingly skills are being taught in technical schools and institutes, and both workers and employers are becoming aware of the value of longer formal training. The burden for training skilled workers — as for educating our professional men and women — will therefore fall more heavily on our educational system. We have strongly recommended measures which should greatly expand our existing educational facilities to meet the demand that will be made on them. In Chapter 15 we outline the capital requirements of schools and universities in the years up to 1980; and in the final chapter we urge that salaries be substantially increased in order to attract enough men and women of high calibre into the teaching profession. Such measures will increase the flow of skilled and professional manpower into the service industries, as into other sectors of the economy. But trained and able people will probably be as scarce in the world of 1980 as they are today. We hope that in the intervening years employers will learn to make more efficient use of the training and abilities of their employees and thereby bring us nearer the full measure of productivity which is within our reach.

TRANSPORTATION

THE TRANSPORTATION industry's main and obvious economic function, that of moving raw materials and finished products easily and efficiently to market, is the same in any country — rich mineral deposits which are completely inaccessible or manufactured products which cannot be delivered to potential buyers are of little value anywhere in the world. However, transportation's role in bringing together manpower, materials, and markets has had and will continue to have a unique importance for Canada because of our vast distances, our small and scattered population, our remote natural resources and our dependence on distant export markets. Indeed, an effective and up-to-date transportation system has always been the life line which has made possible the continued development and progress of our specialized economy, even though both the sources of our wealth and the forms of our transport have changed dramatically over the years. The fur trade of early times could no more have existed without the birch-bark canoe than a later generation of Prairie wheat farmers could have survived without a railway and cheap ocean shipping. Similarly, the recently tapped mineral resources of Labrador, like those of the Ontario cobalt and gold country half a century earlier, had to wait for the provision of adequate transport, while the building of the aluminum project at Kitimat was in some measure made possible by the ability of helicopters to fly men and materials into otherwise inaccessible terrain. And tomorrow, as today, we will be heavily dependent on pipelines to market our oil and gas, on airplanes to discover and exploit new resources, and on trucks, railways and steamships to make possible the further development of our specialized mass production manufacturing industries.

It is not surprising, in view of its central economic importance to Canada, that the subject of transportation has been closely interwoven with the political life of the country throughout its history. Even before 1867, expenditures on canals, roads, and port facilities by public authorities were often aimed as much at the furtherance of national goals like defence and the administration of justice as they were at facilitating the commercial movement of passengers and freight. The fact that a unified Canada would be in a better position to ensure the financing of the transportation facilities needed to develop the northern half of the North Ame-

rican continent played no little part in the decision to create a new dominion. And the support given by the new Federal Government to the building by the Canadian Pacific Railway of an entirely Canadian route to the Pacific, in contradiction to all the laws of economics, undoubtedly did more than any other single act of policy — perhaps more than all other policies put together — to enable the hopeful vision of a separate nation to be turned into a practical and prosperous reality. The influence of national policy considerations on the development of our transport facilities has continued to be felt from that day to this. As it shown in more detail in the study prepared for us on *Transportation in Canada*, assistance to the transport sector by governments in the form of subsidies and capital expenditures amounted to some \$350 million in 1953. This assistance takes forms too numerous to mention here; a few examples are the direct subsidies given to railways, the maintenance and operation of toll-free canals, the losses incurred on the operation of airports and marine services, and government outlays on the building and maintenance of roads and highways in excess of revenues received from users.

In addition, whenever possible Federal Government assistance and regulatory policies have been devised with an eye to easing somewhat the heavy transport charges incurred by regions outside the central portions of Ontario and Quebec as a result of the tariff and other national policies. The provision and maintenance of certain railway and steamship services by the Government of Canada was in fact, for Newfoundland in 1949 as for the three Maritime Provinces and British Columbia more than 75 years earlier, a condition of entry into Confederation. The maintenance of the Crow's Nest Pass rates, the 1951 "bridge" subsidy for rail traffic moving across the region north of Lake Superior, the recently increased subsidy on Maritime freight rates, and provincial and federal capital assistance for railways into northern territories are further illustrations of the characteristic concern of Canadian governments with regional transportation services and rates. The whole question of government policy will be discussed again later in this chapter — our point here is to emphasize that trends in Canadian transportation cannot be properly evaluated in terms of commercial consideration alone.

At the same time it should be stressed that purely commercial factors have come to exert a much more important influence than once they did on the pattern of our transportation system. In part, of course, this has been due to the fact that government assistance to transport in any country must inevitably decline after the initial heavy costs of developing basic facilities have been incurred — prior to 1914 almost the entire federal debt and a substantial part of that of the provinces as well, had accumulated as a result of the construction of railways, canals, roads and other transportation agencies. More important, however, in bringing commercial considerations to the forefront has been the comparatively

recent emergence of vigorous competition in the transportation sector. In contrast to earlier periods, when newer forms of transport tended entirely to displace previously existing methods — e.g., the impact of the railroad on the stage-coach and of the steamship on the schooner — more recent technology has led to the growth of new facilities which complement, as well as compete with, older forms of transportation. Thus the railroads, for example, which up to three or four decades ago had a virtual monopoly in the movement of goods and passengers by land, are now engaged in strenuous competition with trucks, airplanes and pipelines over a wide range of their activities. Rail transport, like each of its rivals, has functions which it can clearly perform better and more economically than any of the others, but at the same time there is a broad and shifting area where the question of which carrier gets the traffic can only be answered by the rigorous test of efficiency in a highly competitive market. The market is the more competitive because many of the newer forms of transport can be easily developed, at least on a local basis, by small entrepreneurs; it does not require formidable investments to start a small trucking, flying or inland shipping firm. This growth of competition in transport, although by no means always a net gain to the community, has on the whole led to a more highly developed, efficient, and cheaper national transportation system, offering shippers not only new services but a choice between those services as well. If we are to assess the future of the transport sector in a realistic way, therefore, we must lay special stress on this newly dominant factor of competition.

We shall devote most of our attention in this chapter to freight traffic because of its greater economic importance. Our comments about passenger traffic are made toward the end of the chapter.

Recent Trends in Transportation

The effect of competition on some of the main forms of transport in the past can clearly be seen from the following table:

Table 14. 1

ESTIMATED DISTRIBUTION OF INTERCITY REVENUE FREIGHT TON-MILE (millions)

Year	Rail	Water	Highway	Air	Pipeline	Total
1928	41,846.8 83.8%	8,067.8 16.1%	49.7 0.1%	—	—	49,964.3 100.0%
1945 . . .	63,645.7 74.1%	18,336.2 21.4%	3,437.4 4.0%	3.4 neg.	400.0 0.5%	85,822.7 100.0%
1953 . . .	65,825.3 60.5%	21,897.2 20.1%	14,185.4 13.1%	23.7 neg.	6,816.6 6.3%	108,748.2 100.0%

SOURCE: J-C. Lessard, *Transportation in Canada*, 1957, a study for the Commission, Section III, Chap. 1, p. 76.

The striking features of the table, of course, are the sharp decline in the percentage of total intercity freight carried by the railroads and the very rapid rise of highway and pipeline transportation, particularly since 1945. A closer examination of these past trends may help to throw light on what the future holds for each segment of the industry.

a) Railways

It is logical to begin this short analysis with the railways, not only because they are still the most important single element in the field of Canadian transportation, but because it is they that have been most affected by the new competitive environment. Table 14.1 shows that in comparison to the peak traffic year of 1928, 1953 railway revenue freight ton-miles increased by not much more than 50 per cent. Real national output more than doubled in this same period. At the same time, an increasing amount of the high-rated traffic (i.e., on which freight rates per ton-mile are comparatively high) has gone to competitors; the proportion of total transport outlays accruing to the railways has, therefore, fallen more sharply than the volume figures above would suggest.¹ Put in another way, the constant dollar value of all expenditures (including government subsidies) on railways increased by 38.5 per cent in the two and a half decades ending in 1953, while expenditures on all other forms of transport increased nearly four and one-half times.²

Although the figures which reveal the dramatic decline in the railway's share of the transportation market are comparatively straightforward, some of the basic reasons for this fall are more subtle and complex. An important cause, of course, has been the shift which has occurred in the pattern of national output — the relative rise in services as opposed to commodity production, the decline in the relative importance of agriculture, and the change from coal to hydro-power and oil and gas as the main sources of our energy. In addition, the relatively rapid rise of those manufacturing industries in which output and components are often more conveniently shipped by truck, considerations of plant location, increasing industrial concentration in and around urban areas, and more efficient use of bulky raw materials have all tended in one way or another to bring about a decline in the proportion of national production moving by rail.

The two major railways, however, also claim that they have undergone losses of traffic to competitors because of the statutory and regulatory restrictions imposed upon them.³ On the other hand, the Canadian Trucking Association claims that limitations on the railways' ability to compete with them are small or non-existent in practice.⁴ It is true that section 334 of the Railway Act, which empowers the Board of Transport Commissioners to seek such detailed information about proposed competitive rates, has been liberally interpreted by the Board, although it is potentially restrictive. Moreover, a 1955 amendment to the Transport Act enables

new agreed charges to come into effect 20 days after filing with the Board, thus eliminating long delays. It is also true that appeals from the Board's decisions on rate matters to the Governor-in-Council have been infrequent, with reversals of those decisions more infrequent still, and that the Board's regulations with respect to safety, comfort and convenience have not been unduly onerous to the railways. If, however, we can agree with the truckers that the foregoing restrictions are only potentially limiting, we cannot agree with them that other obligations imposed on the railways have not limited the latter's ability to compete. We refer specifically to the statutory Crow's Nest Pass and related rates on grain, which constitute 27 per cent to 30 per cent of the railways' volume of traffic and less than 10 per cent of their revenue; to the recent equalization of class rates outside the Maritimes which cost the railways nearly \$5 million a year; to the one and one-third rule on transcontinental rates,* and to the Board's reluctance to allow the abandonment of unprofitable branch lines and services.

These burdens on the railways force them to try to recover their overhead costs from a comparatively small proportion of their total traffic. They claim that some 80 per cent to 85 per cent of their overhead comes from the class of traffic in question. But it is just this portion of the traffic which is most susceptible to competition and if rates are pushed too high, business is diverted to competing forms of transport leaving the railways in an even worse position than before. Authorized freight rate increases of over 100 per cent since the War have not, therefore, begun to return this amount of additional revenue to the railways. In fact, average rates per ton-mile are only some 60 per cent higher than in 1939 because of competitive and regulatory limitations.⁵ The railways have, however, been compelled to try to raise their rates almost year by year since the War in order to meet rising internal costs and the increasing wage demands of their labour (wages account for 60 per cent of railroad operating outlays). Although it is difficult to make precise comparisons with other occupations, railway wages certainly do not appear unduly high in terms of national averages; there may well be exceptions in some wage groups whose work is made easier by technological improvements or whose pay is still based on mileage scales more appropriate to the days when trains were slower. However that may be, our point is to emphasize that the railways have had to adapt themselves, in the words of the President of the Canadian National Railways, "to the challenge of a high-wage society". Pressed on the one hand by rising costs and on the other by statutory and competitive limitations on the rates they can charge, the two major railways, which account for over 90 per cent of total Canadian railroad operations, have seen the proportion of net earnings to revenues fall well below the level of the late 1920's, even though the absolute total

* Freight rates on transcontinental traffic to intermediate points may not exceed $1\frac{1}{3}$ times the rates charged on freight to more westerly points.

has risen. This, of course, has not been true for each and every one of Canada's 31 railways; a few, by the nature of their location, e.g., in the North, have not been subject to the same degree of competition.

The preceding paragraphs may leave the impression that our railway system faces the future gripped by powerful forces entirely beyond its control. This is not the case at all, even though by the common consent of independent Canadian transportation authorities and senior railway executives themselves, it is admitted that our railways were, and perhaps still are, slow in accepting the necessities of the new competitive atmosphere. In terms of adopting new physical equipment, which can save on labour costs and offer customers improved services, we have fallen far behind the United States. With the exception of one or two railways like the Algoma Central and the Quebec Labrador, dieselization has proceeded slowly; the two major railways are not much over half dieselized compared to 100 per cent dieselization for most Class I railways south of the border. In the development and use of centralized traffic controls, automatic signalling devices, and modern switching and freight handling apparatus, etc., we have also lagged behind the United States. Mainly as a result of the slower pace of dieselization gross ton-miles per freight-train-hour on our railways — perhaps the best single indication of railroad efficiency — while sharply improved since 1952, have fallen still further behind United States Class I railways in the post-war period as a whole.

It is by no means clear, either, that our railways have achieved the maximum possible advantages within the framework of present regulations. For example, it is questionable if the number of agreed charges has grown as fast as it might since 1955, even though the total rose in two years from 54 to 156. One wonders also if the total mileage of rail line abandoned — 114 miles in 1955 — indicates that the railways are pressing as vigorously as they might for the elimination of unprofitable services. Moreover, the recommendation of the Turgeon Commission in 1951 that more joint programmes be undertaken by the two railways to achieve added operating economies does not appear to have had very spectacular results. In the 15 years up to 1949 pool trains, joint freight and switching service, and abandonments with joint use of the remaining line had saved about \$1 million annually. Another field in which progress seems to us to have been slower than it need have been, is in the development of "piggy-back services", the carrying of loaded trucks on railway flat cars. Such services, highly developed in the United States, are mutually advantageous in that they combine the door-to-door flexibility of trucks with the long-haul advantages of the railroads.

As is pointed out in the transportation study, railway pricing policy is also undergoing considerable change to meet the new challenge of competition. When the railroads enjoyed a virtual monopoly position,

they maximized their revenues — in the words of Mr. Donald Gordon, held “to the touchstone of corporate self-interest”⁶ — by charging on the value of service principle, i.e., what the traffic would bear. Translated into practical terms, this meant that rates on low-value bulk commodities and on developmental routes were kept at low levels, while the greatest proportion of overheads was recovered from high value traffic and non-competitive traffic that could absorb higher freight rates. As pointed out above, competition has drastically changed this situation; the railways can no longer afford to grant internal subsidies to traffic that does not meet its long-run out-of-pocket costs because their high-rated traffic, out of which the subsidies were paid, are now so vulnerable to competition. In these circumstances, carriage of any traffic that imposes a higher overhead on the remaining traffic than if it were not carried at all is likely to lead to further misallocation of transport resources by tempting the railways to charge higher prices than they otherwise would on traffic subject to competition. This may result in the diversion of the latter traffic to competing forms of transport, despite the fact that the economic cost of carriage is lower on the railroad; the misallocation occurs in reverse if the railways slash prices below out-of-pocket costs and win away from trucks traffic that could most appropriately and economically be carried by road. Of course, any traffic which meets its long-run out-of-pocket costs and makes some contribution to common overheads, no matter how small, should be carried by the carrier concerned; in this way overheads on the remaining traffic are reduced, all shippers are better off, and the most efficient use of transport resources is promoted.

It is easier, however, to state the principle than to carry it out in practice because measurement of the costs of any individual railway shipment is extremely complex. It depends not only on the size and weight of the shipment but the distance it is to travel, the routes over which it is to be sent, its ease of loading and handling, its liability to damage, the insurance risk involved, and the special services like refrigeration, switching, and stop-off privileges which may be involved. In addition, there is a time factor involved — assuming space capacity is available, the railways’ long-run out-of-pocket costs are very different, depending on whether the requirement is for an additional carload, an additional car a day, an extra train, or an extra train a day. Yet, even if all these variables are known, it is still impossible to allocate in any definite way the costs, say, of maintaining railway track among all the individual shipments which pass over it;⁷ it is also very difficult in many cases to allot to any particular shipment moving in one direction the joint cost which is incurred in sending empty freight cars back to the point of origin. Nevertheless, improved cost techniques are constantly being developed in the United States and Canada to determine more precisely whether shipments are making some contribution to overheads. The importance of these cost studies is indicated by the fact that about 25 per cent of the Canadian National Railway’s ton-

mileage fails to contribute anything to overheads, another 30 per cent is marginal, and virtually all overheads are recovered from 45 per cent of operations; the Canadian Pacific Railway indicated in 1952 that fully 85 per cent of its overheads was recovered from 30 per cent of its traffic. In part this state of affairs exists because statutory rates and equalization schemes imposed on the railways give them no opportunity to price according to cost.

b) Trucks

Unlike the railways, which have been confronted with all the problems of a relatively declining industry, trucking in Canada has had to cope with the many difficulties of an almost explosively rapid growth. The number of trucks of all kinds registered in Canada grew from 130,000 in 1928 to 820,000 in 1953, and has since grown to over 900,000. Yet even these figures do not tell the full story of intercity highway freight transport. The increase in the number of intercity trucks has been much more rapid, while the heavier vehicles have grown at a faster rate than this again — in the last ten years alone trucks of over 20,000 lbs. have multiplied seven-fold. It appears that only about 20 per cent of the total number of trucks are engaged in intercity operations but because of their greater size and larger mileage per day, they account for over half of the total ton-mileage of all trucks and for 40 per cent of total spending on trucking. In any event, there has been an expansion from 1928 to 1953 of over 85 times in the dollar amount spent by the public on highway trucking compared to a growth in outlays of about 5 times for urban, and 15 times for farm trucking. Some of the reasons for the phenomenal growth of trucking in Canada have been mentioned earlier. The growth of the light manufacturing industries whose output has a high value/weight ratio, and the increasing urbanization and concentration of industry generally has placed a premium on the speed, convenience and flexibility of trucks. They are easy to pack and their door-to-door service reduces handling and consequent damage, while they offer manufacturers a useful means of keeping inventory at a minimum and an easy way to supply retailers with goods and spare parts at low cost. In short, despite their higher costs per ton-mile — an average, if an average means anything, of between 5 cents and 7 cents compared to the railways, one and one-half cents — trucking can provide in many instances a quality of speed and service that reduces the over-all costs to their customers. Other factors besides quality and price have naturally played an important role in the growth of trucking; better truck bodies, engines, and tires, and improved and extended networks of highways have both helped to bring a very high proportion of Canada's population within easy access of the industry — there are now 40,000 miles of paved highways in Canada compared to some 7,500 miles in 1928. Of course, beyond a certain range trucking loses its advantages as was shown very clearly during the 1950 railway strike; speed is

lost and costs rise because the driver must stop to sleep and eat, while the truck's characteristic advantages of low terminal costs and door-to-door handling become relatively insignificant. The actual economic range of trucks is not fixed but depends on the speed and weight of the individual vehicle, on whether the firm has offices along the route to contact and assist the driver, and on whether return loads are available.

With the exception of Federal Government contributions, expected to total some \$250 million, to the Trans-Canada Highway and smaller amounts paid by that government for roads in national parks and Canada's North, all highway and road building is the responsibility of provincial and municipal governments. Regulation of trucking is also in provincial hands, including since 1954 the control of interprovincial and international traffic. In regulatory matters, as in growth itself, the position has contrasted sharply with the railways. Control of the industry is very loose, some provinces making no attempt to control entry into the business or to regulate rates; the railways, on the other hand, must file, publish, and adhere to, their rates. Indeed, only two provinces seriously attempt to control intra-provincial trucking and only one to regulate extra-provincial traffic.⁸ Regulation of the industry is inevitably made difficult by the very local nature of some operations and by the ease with which a small operator can enter the field or a private firm begin to operate its own fleet of vehicles; these factors also operate to make hitherto published statistics on the industry incomplete. In any event, as the transportation study notes, the industry in its growth phase has been plagued by fringe elements and gypsy operators who will cut rates to unjustified levels to obtain a return load. This is a source of continuing concern to the sounder, more responsible companies which have developed a high standard of administration, safety and business practices.

c) Water

As shown in Table 14.1, the water carriers (which excludes non-Canadian carriers) — the oldest form of transport in Canada — have actually increased their total share of the available freight volume since 1928, although their proportion of the dollar value of business has fallen because this traffic is almost entirely low-rated. This expansion has been due to their very low costs, 0.2 cents to 0.5 cents a ton-mile, because of their willingness to provide joint "fishy-back" and other co-ordinated services with trucks, and because they have been favourably located geographically to handle both commodities like grain, iron ore, coal, etc., which make up 92 per cent of their volume. The long, narrow, deep-draught ships on the Great Lakes are cheap to build and operate, and are generally equipped with modern handling equipment; one such ship has loaded over 100,000 bushels of wheat — 3,400 tons — in an hour. The Board

of Transport Commissioners regulates these bulk freighters as to seaworthiness, etc., and there is provision for intervention if rates (currently two-thirds of the low competitive railway rate to Montreal from the Lakehead on grain, for example) are excessive. Package freight rates, which are lower than those of the railways, are subject to much the same control as the latter. Seasonal and directional costs are relatively high but are not noticeable to the shipping public because of the low total costs of this form of transport. In the rapidly expanding Northwest Territories transportation market, however, the directional unbalance is very acute — the North-South ratio is 9:1 and high costs are further increased by the long distances and extremely short season involved. Another contributory factor is the need to use paddle-wheelers and barges rather than cheaper types of shipping because of the shallow and shifting sands of the MacKenzie and its tributaries.

d) Air

Air transportation has shown the most rapid growth of any form of transport except pipelines since 1945, although it still carries in both Canada and the United States less than one-half of one per cent of the ton-miles transported on the railways. The main reason for this is that the average cost of a ton-mile of air freight is still of the order of 50 cents, or more than 30 times that of railway freight, despite reductions of some 70 per cent in the last 15 years. As in the case of trucking, the expansion of air freight has been tied to the growth of industries marketing products with a high value/weight ratio and depending on speed, flexibility, and, at times, emergency service. However, among the disadvantages of shipping by air are the high costs of handling and stowing, and the need to transfer shipments to and from airports which are often a considerable distance from the shipping or consignment point. The most spectacular growth in air transport has taken place in the North, for aircraft equipped with skis or pontoons can cheaply and quickly reach places formerly inaccessible. This has enabled both the discovery and utilization of our more remote resources to be speeded up — for example, the Quebec-Labrador iron ore development was greatly aided by the 150 million lbs. of air freight which were flown into it, while prospecting in Ungava has been based almost entirely on air transport. The story of aircraft's role in the building of the Distant Early Warning network in the far North is too well known to repeat here, but it gives further concrete proof of the important part which air transport has come to play in our national development. Air routes in Canada are reserved to one or a limited number of carriers by the Air Transport Board, while airlines are free to vary rates for commercial purposes. Directional costs are high on almost all routes — our trans-border freight, but not of course passenger traffic, is over 90 per cent northbound — so that air carriers typically use promotional rate methods to stimulate return freight traffic.

e) Pipelines

The striking growth of Canadian pipeline mileage and revenue has, of course, been directly related to the discovery of oil and gas in Western Canada. While not competitive with tanker charges where an uninterrupted water haul is possible, pipeline rates of between 0.3 cents and 0.5 cents per ton-mile compare favourably with other forms of transport. Pipelines are particularly suited to the transportation of Canadian oil and gas because of the long land-haul involved, their freedom from seasonal interruptions, and the high degree of mechanization which is possible. Exclusive pipeline franchises are granted and, as in the case of airlines, rates can be varied for commercial reasons.

Trends in National and Regional Transport Costs

The decline that has been occurring in the relative importance of the railroads and the development of more flexible means of transport like trucks, airplanes and pipelines have been accompanied by a reduction in the proportion of total Canadian resources devoted to transportation costs each year. Also contributing to this decline in the burden of what has been called "national transportation overheads", have been the rapid expansion of the country generally, shifts in the composition of national production and export markets, and the increasing concentration and urbanization of population. The transportation study indicates that these forces have caused the ratio of direct transportation costs to Canadian Gross National Product to fall from 10.0 per cent in 1928 to 7.9 per cent in 1953. Comparable figures are not available from the United States for the earlier year, but since 1945 the Canadian ratio appears to have fallen considerably faster than the American, which stood at 5.1 per cent in 1953. A full discussion of the meaning and limitations of these data is not possible here,⁹ but it should be noted that the transportation figures are gross and contain numerous duplications, whereas the Gross National Product series is a net concept. The result is to overstate the importance of transportation expenditures in both countries relative to Gross National Product and also to exaggerate the spread between the two countries in the proportion of total *net* outlays devoted to transport. Also private water and trucking transport, which is much more important in the United States, is not included in the above figures. It is probable, therefore, that Canadians spend not much more than 1 per cent more of their incomes on transport than their American counterparts — excluding the cost of private automobiles, which can hardly be regarded as a form of national overhead.

We have already indicated how improved industrial location, economies in materials and handling, and the relative growth of production characterized by low transport costs have contributed to the fall in relative transport costs. Increasing concentration of population has had the same effect, despite the fact that our national market is not large

enough to permit the same regional decentralization of manufacturing as occurs in the United States. The growth of the newer and more divisible forms of transport has obviously played an important role also; roads, pipelines, and air transport can be created in quite small units without incurring the relatively great diseconomies of small scale characteristic of railroads. Thus, with one-tenth the population of the United States, we have approximately 10 per cent as many surfaced miles of road (probably less, if one could adjust for the quality factor which permits a two-lane asphalt road to be adequate for certain routes in Canada, while the comparable United States road is a four-lane expressway, etc.), and about one-sixteenth the number of airports and one-seventeenth the number of scheduled airline route miles (although this should be modified by the fact that unscheduled routes and the use of lakes as landing grounds are relatively more important in Canada).

In sharp contrast, we have fully one-fifth as much main-line railway track as the United States, or about twice as much mileage per capita. Not all of this, of course, has been due to the inevitable necessities of our economic geography. Much of the burden of maintaining this trackage has stemmed from over-optimism and regional pressures which led to the building of three transcontinental railways in Canada. A disregard for economy in the building of such railways as the Intercolonial and the National Transcontinental, has also played its part in raising financial charges to the taxpayer. In any event, the traffic density on our railways is about 55 per cent that of United States Class I roads, and this is the major reason why net revenues per mile of line are lower than in the United States. Other physical factors relevant to the comparison are the higher operating costs associated with the more severe climate in Canada, and on the other hand the advantage to Canadian railroads of operating as integrated transcontinental systems and thereby avoiding the many problems involved in traffic interchanges.

The major part of the greater amount of resources devoted to transport in Canada than in the United States is due to spending on railway operations, in part because railways are still relatively more important in Canada, accounting for 60 per cent of all intercity ton-miles compared to 53 per cent south of the border. The percentage of national resources devoted to other transport services does not appear in total greatly, if at all, higher in Canada when private automobile transportation is included, although this is not true in every instance. In fact, the burden of transportation costs imposed by our climate and geography is smaller than is commonly thought.

As we shall be mentioning regional transportation services and facilities in Chapter 19, we shall confine ourselves here to a brief summary of the differential impact of recent trends on different parts of Canada. Simply stated, the growth and concentration of competition in central

Canada has forced the railways to withdraw a substantial part of the internal subsidy that they formerly granted to marginal services throughout the country; these services must now be priced much closer to their true economic cost. Although the proportion of trucks registered in Ontario and Quebec is smaller than the percentage of population, a very high percentage of *highway transport* trucks are concentrated in these two provinces; one submission stated that only 1 per cent of Canadian highway freight is carried in the four Atlantic Provinces.¹⁰ In any event, the number of competitive rates and agreed charges granted to the Maritimes in particular has been less than in other areas and their freight rates, consequently, have risen relatively. For example, we were told that westbound rates on less than carload traffic from the Maritimes had increased 110 per cent to 130 per cent between 1937 and 1955 compared to an increase, perhaps not entirely representative, of only 42 per cent to 56 per cent from Toronto to Montreal. Rates on a typical steel product from Sydney to Toronto had increased 97 per cent from 1948 to 1955 compared to increases of only 8 per cent and of 59 per cent from Hamilton and Sault Ste. Marie respectively; similar cases that we learned of included salt, stoves, and lumber.

The impact on the West has been less severe. British Columbia, particularly the coastal region, benefits from an extensive network of competitive rates designed mainly to meet competition by water through the Panama Canal, but also to compete where practical with American imports carried by the United States railways; and along with other provinces, it has gained from the numerous agreed charges which have been negotiated. The introduction, in 1951, of the "bridge" subsidy on certain classes of traffic passing north of Lake Superior has been of assistance to the entire West. The statutory grain rates which apply to 40 per cent to 50 per cent of the rail traffic in the western region have been particularly significant in the Prairie Provinces; and the adoption of the one and one-third rule also tended to put a ceiling on some rates in these provinces.

It is, of course, impossible for us to measure in statistical terms this differential increase in freight rates in the Atlantic Region, particularly as many Canadian companies absorb part or all of the freight costs to the outlying regions of Canada. If this freight rate increase had been only a straight horizontal one, i.e., in proportion to prices and other freight rates generally, the average competitive position of the region's producers, if not of each individual firm, would not have been impaired — a freight differential of \$2 on a product costing \$100 is no more onerous than \$1 on a \$50 product if the purchasing power of the dollar has fallen by half; for example, despite numerous increases, the freight component of newsprint from Three Rivers at New York was 13 per cent in September, 1957, compared to 14 per cent in January, 1939. However, the competitive freight position of the Atlantic Provinces clearly has been

adversely affected by the necessity to pay a fuller share of its freight costs than formerly on westbound traffic. If purely economic factors alone were being considered, there could perhaps be little objection to this trend, but it was a clearly established intent of Confederation that the Maritimes should have comparatively cheap access to the markets of central Canada and should not be forced to pay an unduly high price because, for national defence reasons, the Intercolonial took a circuitous route rather than a direct one. However, we would not like to leave the impression here that transportation factors alone have caused the difficulties of the Atlantic Region; markets, resources, labour and enterprise considerations have been much more important. Freight costs, as a percentage of final selling price, vary widely. For example, and as a rough approximation, freight charges may amount to about two-thirds on straw, 50 per cent on lumber and coal, 25 per cent to 33 per cent on pulpwood and steel bars, 15 per cent on canned goods, 5 per cent on automobiles, 2 per cent on cotton cloth, and 1 per cent on leather footwear, all assuming an average haul of about 1,000 miles. Flat generalizations about transport costs cannot, therefore, be made about individual products, but it is worth noting that a recent survey of industrialists in Manitoba put transport costs far down the list as a factor determining industrial location. While the growth of competition in Canadian transport has undoubtedly affected Atlantic freight differentials adversely, particularly on westbound traffic, we must conclude that a correction of this condition alone would not solve that region's economic problems.

The Future and Government Policy

Will the transport trends of the future be greatly different from the past? We answer with considerable diffidence when we read of the transportation expert of half a century ago who stated it was "nothing less than feeble mindedness to expect anything to come of the horseless carriage movement"! Nevertheless, we feel that future developments will be broadly the same as recent experience. In the economy as a whole there will be a continuation of the relative growth of light manufacturing, mining, and services; agriculture and exports will further decline relatively, while concentration and urbanization of our population will increase. These factors by themselves are sufficient to guarantee that the pressures of competition in transport will continue to be maintained at no less than their present levels in future. Moreover, the rapid pace at which technological progress is likely to be made points in the same direction; the speed, carrying capacity and efficiency of all forms of transport have by no means reached their limits, particularly in the newer forms. There are few products which can now be said to be suited only to one form of transport and, therefore, completely immune from competition; probable future improvements in aircraft, truck, or railway service, are likely to intensify and broaden competition still further.

Looking at these factors as they affect the railways, one must conclude that the pattern of traffic is likely to cause a further relative decline in their importance. However, improved locomotives, lighter materials, improved multi-purpose freight cars, better rail, as well as mechanization and automation of freight handling, switching, signalling, and office systems, will offer the railways considerable scope for enhancing their competitive efficiency and raising labour productivity. Most important, there is a greater recognition on the part of railway managements of the necessity of adopting themselves to competition and rationalizing their operations, both internally and in conjunction with other railways and other forms of transport. We, therefore, expect the volume of railway traffic to increase somewhat faster in the next twenty-five years than in the preceding quarter century, perhaps by 75 per cent to 80 per cent.

The volume of truck traffic is likely to grow by about three times with intercity trucking — particularly privately owned trucking — expanding slightly faster still. Favouring this development, of course, are the expected composition of national transport traffic itself, improved highways and roads, and the development of more powerful, lighter, and larger-sized vehicles. As the number of registered trucks is likely to exceed two million by 1980, we would expect that the industry will make increased use of common terminals and freight clearing houses, as well as improved communications and office-processing techniques, to reduce costs and eliminate needless duplications. Pipeline volume, of course, is likely to expand even faster because of the anticipated growth of our oil and natural gas industry. We think this expansion will be of the order of seven times present throughput, with relative manpower needs being further cut by the use of larger pipe, more electronic equipment, and radioactive isotopes.

The amount of freight traffic carried by air will probably increase by about four times, not least because the all-up weight of large planes is likely to increase to 500 tons from its present level of 85 tons and because the speed of longer-range jetliners may reach 1,600 miles an hour by 1980. The costs of air transport will consequently continue to fall, although rates are unlikely ever to match those of rail and road carriers. Turbo-propeller aircraft are expected to continue to provide service on short and intermediate hauls, but the flexibility of helicopters could lead to their extensive use if their carrying capacity could be increased. Atomic-powered aircraft are a remote possibility because of problems of weight, shielding, and their danger in the event of a crash, but if the helicopter principle is ever successfully adapted to fixed wing jet aircraft for purposes of take-off and landing, the future growth of air transport would be enormously greater than we have predicted here.

The St. Lawrence Seaway and the expected growth in iron ore traffic are expected to be the two major influences on the expansion of inland

shipping. We believe they will cause the volume of water traffic to increase by more than three times from 1953 to 1980. Despite the fact that ships will become lighter, more mechanized, and faster, their main source of revenue will continue to be bulk commodities, with iron ore providing about half the tonnage. Other types of freight for the most part will continue to be hauled by rail or truck because of speed and service factors.

The following table, taken from the transportation study, summarizes these projections:

Table 14. 2

DIRECT TRANSPORTATION COSTS OF INDIVIDUAL CARRIERS AS A PERCENTAGE OF TOTAL FOR-HIRE DIRECT COSTS

Year	Total direct cost (\$000,000)	Railways %	Motor vehicles %	Airlines %	Water carriers %	Pipelines %	Total %
1953.....	\$1,614	57.9	22.4	5.2	13.1	1.4	100
1960.....	2,079	50.8	24.2	6.7	15.6	2.7	100
1965.....	2,485	47.5	25.8	7.6	15.9	3.2	100
1970.....	2,908	44.9	27.0	7.9	16.5	3.7	100
1975.....	3,398	43.0	27.9	8.2	16.8	4.1	100
1980.....	3,885	41.7	28.1	8.2	17.5	4.5	100

SOURCE: J-C. Lessard, *Transportation in Canada, 1957*, a study for the Commission, Section II, Chap. 2, p. 67.

As the table deals only with intercity costs, the heavy expenditures on urban transportation — almost exclusively the preserve of trucks — are omitted. Nevertheless, it points up sharply the continued expansion anticipated in the relative position of the railways and the expected expansion of other forms of transport. It is also anticipated that there will be a fall of perhaps 20 per cent in the percentage of Canadian income devoted to intercity transportation directly by users. We also believe that government expenditures on intercity transport will continue to be reduced in importance so that the national overhead of transport is expected to decline in total.

Future developments are expected to be concentrated on existing routes, but improved roads should bring about the greatest percentage increase of trucking in the Atlantic Region. Increases in the volume of freight traffic will probably cause the most pronounced relative growth in air services to take place in this region also, although northern services will show a very substantial expansion. The benefits of the Seaway development, on the other hand, will accrue in large measure to Western Canada and the central provinces. Most ocean ships will probably continue to end their journey at Montreal, but because large lakera will be able to come down-river, grain rates are expected to be 5 cents to 7 cents cheaper than at present. Other rates will be reduced also, partly as a result of the increased competition experienced by trucks and railways.

The anticipated increase in westbound ore shipments from Quebec and Labrador is likely to change the directional flow of traffic, making east-bound rates cheaper than those on traffic moving west. This could conceivably affect some Maritime producers adversely, both by making their shipping costs higher and by lowering the delivered cost of competitive goods from Central Canada. The Seaway will also eliminate the need for trans-shipment points between Montreal and the Lakes, although many of these communities will undoubtedly attract new industry to take advantage of the Seaway. In general, intense competition will continue to prevent the railways or other transport agencies from extending internal subsidies to the Atlantic Region on the former scale.

What is the significance of these trends for government policy? We have no panaceas to put forward, but, at this stage of our national development, we think a reasonable primary aim to be to allow the benefits of competition to accrue to shippers and the general public. Unnecessary subsidies are not just out of one pocket into another; they divert transport from economically low-cost agencies to high-cost media with consequent adverse effects on industrial location, on resource utilization, and on the real incomes of Canadians generally. In a competitive atmosphere, prices of each of the forms of transport should be allowed to reflect, as nearly as possible, the costs of the service provided.

It is with these considerations in mind that we suggest that the Board of Transport Commissioners should vigorously follow up the suggestion of the Turgeon Commission to permit more abandonment of unprofitable branch lines and other unremunerative services. With the growth of bus and trucking services, this could be done in many cases with little or no loss to the public in terms either of convenience or of cost, particularly as the roads are now increasingly being kept open and serviceable throughout the winter. In those few localities where no other transportation is available, it would seem reasonable to permit the railways themselves to operate bus and trucking facilities, subject to those same safeguards of the public interest which are applied to similar services in the province concerned. Some provinces virtually prohibit the introduction of more economic substitute services by the railroads; this, however, should not deter the railways from applying for, and the Board from granting, line abandonment in these circumstances — the provincial authorities always have the alternative open to them of licensing some other service. An obvious corollary of the above is our recommendation that the railways should not be forced to build new lines or introduce new services which are economically unjustifiable.

We also believe that a more unified approach should be taken by the Federal Government in dealing with the transportation agencies under its control. Rather than having each transportation enterprise competing—and unequally at that — for the taxpayer's dollar in order to be able to conceal

the high real cost of certain of their services, we believe it sounder, cheaper, and more efficient for them to provide only those services which will stand on their own feet. Moreover, if for national policy reasons, the Government feels it necessary to provide transportation at reduced rates to certain regions or producer interests, this should be done by openly reimbursing the transportation enterprises involved rather than by imposing uneconomic rates which have to be recouped as best they can elsewhere at the cost of substantial misallocation of the country's transport and other resources. The railways in particular should be allowed to earn a reasonable rate of return where their services are economically justifiable, if they are to finance their needed capital expenditures. Indeed, we take it as axiomatic that the public should pay directly for the public interest; they should not transfer their responsibilities to the shoulders of railway labour or the users of Canadian transport. We, therefore, have concluded, although with no little reluctance that the burden imposed on the railways by the statutory rate on grain traffic could be lifted with the least distortion in the short run by a new charge on the public treasury. Over the longer term we would hope that greater flexibility could be introduced into these rates by the cost reductions which will be effected by the Seaway, by improvement in the world wheat situation and by the growth of livestock production in the Prairie Provinces.

In line with the broad aims of policy which we believe should be followed is our recommendation that other forms of transport should pay a fuller share of the true costs of their operations — subject, of course, to any regional subsidy that may be extended by governments. According to calculations in the transportation study, inland water transport pays only 78 per cent of its full costs, the balance being made up by the provision of harbour, canal, and marine, navigational and other services by the Government at a loss. We would hope that steps will be taken to increase revenues from these sources gradually over the years and that the Seaway, which will be in direct competition with the railways, will pay its full costs including interest and amortization. Air transport is in a similar situation, receiving a subsidy amounting to broadly the same percentage of its total costs through the provision of airports and weather, navigational and other services at well below their real prices. To keep subsidies in check — they would otherwise grow rapidly because of the need for longer runways, better equipped airports, and improved navigation facilities — it may be necessary to raise the landing fees of aircraft at Canadian airports. Although we were told that the landing fees for a North Star aircraft are nearly four times as high in Canada as in the United States, they amount currently to only about 50 cents per passenger carried.

As we indicated in our *Preliminary Report*, these conclusions apply with no less force to Canadian trucking. It is calculated both in *Transportation in Canada* and by the Canadian Tax Foundation that the users of

highways are paying no more than 59 per cent to 64 per cent of highway costs — considerably less if the calculations are made, as they should technically be made, on the basis of amortizing replacement costs, not just historical costs.¹¹ It is generally agreed by transportation authorities that at least 75 per cent to 80 per cent of road and highway costs should be paid for by users, with many authorities holding that it should be 100 per cent, i.e., that those benefiting from vehicular services should pay for the benefit through the taxing and licensing fees of the vehicles that use the roads and highways for door-to-door deliveries, passenger traffic, or community services. It is, of course, impossible to allocate these costs among individual users like trucks, buses and cars according to a rigid scientific formula, even though some general conclusions may be drawn. The same problem occurs in the allocation of the cost of different roads or highways, although it is reasonable to assume that road costs as a whole should be equally divided among all users, particularly as a less travelled route can be built relatively much more cheaply than a heavily-used main express highway between two large industrial centres. In any event, the risk of distorting transport facilities is small in that user taxes now amount to less than 8½ per cent of the average annual total costs of operating a private passenger automobile. For trucks, the percentage varies from under 5 per cent to 15 per cent, depending on the size and use of the truck.

It appears that the larger trucks in particular are responsible for a major part of the large short-fall (\$179 million in 1953) of user revenues in relation to provincial and municipal expenditures. This is true whether their share is calculated on an incremental cost basis — i.e., on the extra damage done to roads by the pounding of heavy trucks and the heavier construction of highways and bridges they require — or on a ton-mile basis. The transportation study indicates that cars and light trucks pay from just over three times to seven and one-half times as much taxes per gross ton-mile as do the heavier vehicles, depending on the province concerned and the size and class of truck. We feel that special studies should be made to determine more exactly the proportion of taxes and fees which should be paid by the different classes of vehicles, with a view to removing these anomalies as well as those which exist in relation to the railways and other forms of transport. It should be pointed out that even a doubling of taxation on the heavier classes of trucks — if this were found to be justified — would only raise the total operating costs of those trucks by 5 per cent. It is unlikely, therefore, that any tax increases found to be necessary will bring about sweeping changes in the pattern of traffic, even though it will eliminate many distortions and inequities. Trucking's growth to no little degree depends on an adequate road and highway system, not only in terms of capacity but in terms of speed, safety, and service; if the roads are to be adequate, all users should pay a larger share of the bill than they have in the past.

We do not think the sort of unity of transport policy we have been talking about can be achieved by some super transport body with rigid regulatory power, even if there were no constitutional objections to such a scheme. We do, however, believe it can be more nearly attained if the authorities concerned seek to ensure that each form of transport as nearly as possible pays its own way and is regulated in such a way as to prevent waste, duplication, and uneconomic rate-making. At the same time we are sure that governments will continue to be subject to pressures to provide free or uneconomic transport services. Numerous transportation matters on which representations were made to us were either not within our terms of reference or incapable of proper study by this Commission. For instance, as the matter is being thoroughly examined by another Royal Commission, we did not feel it proper for us to comment on policy questions connected with coastal shipping, despite the numerous representations we received from the Atlantic Region against barring cheaper foreign ships from this service. For the same reason we did not wish to comment on policy with respect to ocean shipping, despite the similar representations made to us and the opposing views expressed by the Canadian shipbuilding industry that it was in their, and the national, interest to build up a Canadian merchant marine. We also received contradictory submissions from Trans-Canada Air Lines and Canadian Pacific Air Lines, the one claiming that the volume of air traffic in Canada was too small to permit two mainline air-carriers to operate efficiently, the other denying that this was the case. We feel that all the facts and implications of alternative policies should receive careful and continuing study.

We received representations that a railway should be built on the North Shore of the St. Lawrence and that the St. Lawrence River should be kept open for winter navigation from Quebec City through the Gulf.¹² This area requires better water transportation services and, in particular, a year-round boat service from Rimouski to such points on the North Shore as Baie Comeau and Sept Îles. The provision of a year-round water transportation service would help to reduce the present isolation and the consequent high cost of seasonal fluctuations in economic activity on the North Shore. We believe the development of this important area would be speeded if present transportation inadequacies were improved in this way. We are also of the opinion that the solution of the technical problems involved in providing winter ocean navigation to Quebec and the assessment of the financial costs of so doing should be pressed forward. In our view, a railway on the North Shore of the St. Lawrence may well be needed in the years to come.

It was also asserted to us that the Welland Canal may need to be improved before 1980 if it is not to prove a stumbling block to traffic using the Seaway. This would involve "twinning" the five locks out of eight which are still single at a cost of \$125 million to \$150 million. Because

it is impossible to foresee with great precision the amount of Seaway traffic which will pass through the Canal, the directional balance of that traffic, and the average size and cargo carrying capacity of the ships involved, we were not able to determine how soon this bottleneck might become apparent.

Passenger Traffic

Trends in passenger traffic have been not wholly unlike those in freight transport, although they have been much more sharply defined. From a virtual monopoly of all intercity passenger miles at the turn of the century, the railways' share of this traffic declined to just under 40 per cent in 1928 and to just over 10 per cent in 1953. Concomitantly, the share of private automobiles has grown from nil to 60 per cent and nearly 80 per cent respectively in the same period, while in the last quarter century the share of buses has grown from 2.2 per cent to 7.1 per cent of the total and of air transport from nil to 2.9 per cent. The rapid growth of automobile traffic, of course, has had the most profound and far-reaching impact on our social and economic life. Together with all the other speedy forms of modern transport, it has also had a profound effect on our national unity, enabling Canadians to see other parts of the country easily and quickly and to meet and understand their fellow citizens in a way that was undreamed of a comparatively few years ago. One has only to contrast the seven-hour air journey from Toronto to Vancouver (soon to be four hours) with the year and a half it took Cheadle to move the same distance through Canada in 1862 by rail, steamer, canoe, horseback, and finally, on foot — swimming rivers, climbing mountains and hacking through the forests of British Columbia.¹³ Of course, modern transport facilities have increased the pull to the south and overseas as well, and will continue to do so in future. If this sometimes seems to inhibit Canadians from seeing as much of their own country as they should, it also has made a welcome contribution to our knowledge and has enabled us to see ourselves in better perspective.

The growth in the importance of the private automobile as a means of intercity transport is bound to be much slower in the future — if only because it has attained such a large share of the total now. Automobile registrations, however, will probably more than treble their 1953 total to 8¾ million in 1980, with annual expenditures on the operation of cars rising relative to Gross National Product up to about 1965 and falling slightly thereafter to a 1980 level a shade higher than at present. As it is unlikely that the size of intercity buses can be increased, even though their speed might be stepped up with better highways, it is probable that they will not hold their present share of the passenger market. Air travel, particularly on long-hauls and international routes, will doubtless continue to increase with the speed and carrying capacity of aircraft,

even though passenger rates, presently averaging 6 cents a mile, are unlikely to fall as low as those of the buses and railways, currently 2½ cents and 3 cents a mile respectively. Rail transport will probably continue to decline slowly, although on mainline routes and for shorter and overnight journeys it will compete satisfactorily with the airlines because of time-consuming journeys to and from airports. Extensive development of helicopter service could, of course, alter this picture considerably, although introduction of speedier trains and the more extensive use of rail diesel cars should enable the railways to maintain their competitive position fairly well.

The further growth of automobile, truck, and bus registrations, together with increased urbanization, will naturally intensify still more our already acute problems of urban traffic congestion. It is estimated that more than half of all vehicle miles are travelled in urban areas and that an even higher percentage of vehicles are concentrated in these centres, although only 11 per cent of all road expenditures are made in our cities. The result has been collective frustration on a grand scale — speeds have been reduced in many cases to five miles an hour in the rush-hours, the benefits of the shorter work week have been eroded by the extra time taken to get to work, and the costs of delay have mounted to an extraordinary level (in Montreal the extra fuel costs alone of traffic congestion have been estimated at no less than \$30 million annually). The gross inefficiency of urban transport has, in fact, prejudiced the progress and well-being of our larger cities.

As we indicate in the next chapter, the answer to this problem is intimately linked to the whole question of municipal planning and finance. An intelligent start cannot be made, however, until there is more recognition of the fact that automobiles take up between three and four times as much street space per passenger as public transport and cost three to six times as much. Moreover, it takes between four and six three-lane expressways to transport as many passengers in rush hours as a subway or a rapid transit system, and at about five times the cost per person transported; in addition, the expressways create an additional downtown parking and congestion problem. It may reasonably be asked why in these circumstances urban transport has declined so rapidly in importance. The answer in our view is twofold; the inadequate response of public transit authorities to changed conditions and, more important, the fact that the congestion caused by private automobiles slows down the public transit vehicle's speed, making it more convenient and quicker for more people to take their cars, particularly as they are conscious only of immediate operating costs in calculating their expenses. This loss of traffic causes still more congestion and further losses of transit patronage; thus the cycle moves on and on.

In our opinion, the answer to this problem lies in three basic directions. First, the motorist should pay a greater share of congestion's real costs, in terms of streets, parking facilities, and all the other costs of delay. This is important if the municipalities are to remain financially strong. Secondly there will have to be more highway by-passes built and more restrictions on vehicle movements downtown; an outright ban on parking, or even of access in some instances, more one-way streets, fewer left turns, etc. Thirdly, in the larger cities where these arrangements are not sufficient to restore an orderly flow of traffic, large expenditures will have to be made on rapid transit systems, either below, on, or above the ground. In view of the figures given above, it seems reasonable to us that if the provinces are willing to make contributions for expressways, perhaps they should also be ready to provide assistance for rapid transit systems in metropolitan areas. If our cities are to prosper, the motor car must cease to be treated, in the words of Lewis Mumford, "as the sacred cow of our society".

HOUSING AND SOCIAL CAPITAL

CANADA'S STOCK of fixed capital assets may be divided conveniently into industrial capital, social capital and housing. Between the first and the last two of these groups lie real and important differences. A school and a factory building are both, clearly, structures — nowadays, from the outside, they may even look alike. But there the resemblance ends. They are put up for different reasons; they are paid for in different ways; they have different roles to fulfill.

It follows that in attempting to visualize Canada's future requirements of housing and social capital, we must adopt a special viewpoint. First, however, we must indicate what we choose to mean by social capital. We here include schools, universities, churches, hospitals, airports, roads and streets, sewer and water systems, and a mixed assortment of other buildings, installations and equipment used by public institutions and departments of government. For all these things, it seems to us, the Canadian public has come to assume a particular sort of collective responsibility. They do not, for the most part, come into being as a means of making money, but rather to meet acknowledged needs. Their provision is usually undertaken, not by private enterprise, but by governments, religious bodies, and public service organizations of various kinds.

We cannot pretend that our list is a wholly consistent one. Several borderline cases spring to mind. There would be, for example, a good case for including the physical assets of urban transit utilities, were this statistically convenient. There is, too, some anomaly in leaving railways out when roads and airports are in. Sir John A. MacDonald, had he been cursed with the need for such terminology, would probably have regarded railways as neither industrial nor social capital, but as a complex and highly explosive mixture of both. Housing, bound up as it is with family life and so basic a need as shelter, resembles social capital in many respects. Most housing construction in Canada is, to be sure, a commercial venture. But over the last two and a half decades, the public has come to demand of governments that they exert an increasing measure of influence in this field. The rate of housing completions and the availability of housing finance, in particular, have become major preoccupations of government policy.

Housing and Social Capital Needs

In looking at this particular segment of Canada's future, then, we cannot limit ourselves to the kind of considerations that are associated with commercial enterprises. The question that has to be asked is not, on the whole, how much housing and social capital will be profitable in view of effective demand, but rather, how much will Canadians be prepared to pay for, largely through taxes, to meet their needs? Some clue to the answer is provided by our forecast of national income. As national wealth increases, the likelihood is that progressively larger dollar amounts will be devoted to housing and social capital. Another most important indication is to be found in the population forecast of Chapter 6. More people, more houses; more children, more schools. But there are still other factors to be considered. New roads will be needed, not just because the population is growing, but also because that population is making an increasing per-capita use of motor vehicles. New high schools must be erected, not just because the number of teen-agers is rising, but also because those teen-agers are tending to stay for more schooling. Broad technological and social changes of this sort will exert a great influence in the future as they have done in the past.

One of the most significant forces bearing on future housing and social capital requirements will be urbanization — the burgeoning of cities and towns; the increasing ratio of urban to rural population. This will affect not just the location of need, but its amount and intensity. Rural people, of course, need housing, schools and roads. But their requirements do not as a rule extend to civic squares, day nurseries, sidewalks, curbs, sewage disposal plants, and elevated expressways. Important as it will be to meet the changing requirements of the rural community, by far the larger part of the bill for new housing and social capital will be incurred in areas which, if they are not urban today, are destined to become so.

We may, by laying so much stress on this, appear to labour the obvious. Urbanization, after all, has been going on through most of the history of Canada. It has shown up in nearly every census since Confederation. It has been one of the most outstanding and talked-about developments of the post-war boom.

In a wider sense, however — in the sense which embraces not merely the fact but its full implications — urbanization is not so obvious. Canadians have flocked to the cities, but their institutions, their habits of mind, and especially, perhaps, their mythology, have lagged behind. The jut-jawed outdoorsman, still vivid against a prairie sky, a rocky coastline or a stand of black spruce, still works long hours as a national symbol. To a degree, this is very well: such people exist, and their race will, we profoundly trust, endure, providing a flesh-and-blood link with the pioneer

past. But the unromantic fact is that most Canadians today are not like this at all. They live and work in cities and towns; their environment, for most of the year at least, is an urban and largely man-made one. It is of no small importance that they should see themselves and their surroundings for what they are. The spectacle may not in all respects be pleasant to contemplate, but contemplated it must be as the vital first step in moving toward more efficient and more rewarding patterns of urban life.

Our expectations regarding the future urban-rural distribution of Canada's population are summarized in the accompanying table. In brief, we anticipate that the urban population will more than double. By 1980, Canadians living in cities, towns and villages of 1,000 population or more, and in other settlements forming part of large urban areas, will account for almost 80 per cent of the total population, compared with just over 60 per cent in 1951. Close to 50 per cent will be living in enlarged versions of the present 15 census metropolitan areas, and more than half the population will be living in metropolitan and urban areas of over 100,000 population.

Meanwhile, the rural population may increase somewhat in absolute terms, but decline relatively to the total. The rural *farm* population will decline both relatively and absolutely, dropping from roughly 2,800,000 in 1951 to approximately 2,350,000 in 1980. Only about 9 per cent of Canadians in 1980 will be living on farms in rural areas, compared with 20 per cent in 1951.

Table 15.1

**FORECAST OF URBAN-RURAL
DISTRIBUTION OF POPULATION**
(*assumed net immigration — 75,000 per annum*)

	1951 (actual)		1980 (forecast)	
	Thousands of persons	Per cent	Thousands of persons	Per cent
15 metropolitan areas ^a	5,190	37	12,000	45
Other urban	3,433	25	9,010	34
Total	8,623	62	21,010	79
Rural non-farms	2,534	18	3,294	12
Rural farms	2,827	20	2,346	9
Total rural	5,361	38	5,640	21
Total population of Canada (excluding Yukon and N.W.T.)	13,984	100	26,650	100

^a St. John's, Nfld.; Halifax; Saint John, N.B.; Quebec; Montreal; Ottawa; Toronto; Hamilton; London; Windsor; Winnipeg; Calgary; Edmonton; Vancouver; Victoria.

SOURCE: Yves Dubé, J. E. Howes and D. L. McQueen, *Housing and Social Capital*, 1957, a study for the Commission, Chap. 2, Table 8, p. 32.

This forecast, which is developed in the separate study prepared for us, *Housing and Social Capital*, rests on two main assumptions:* first, that the developments which we foresee in the agricultural industry will be associated with a considerable further net decline in the rural farm population; and second, that the larger metropolitan and urban areas, regarded as a group, will draw to themselves as great a share of net increase in the national population as they have drawn in the recent past. Smaller urban places will grow — indeed, they may grow more rapidly in percentage terms than the metropolises. There will be some new Kitimats, too. But well over half the net increase in Canada's population will accrue to urban areas which already have more than 40,000 people in them.

These assumptions and the conclusions to which they give rise may well be unacceptable to many of our readers. Some may think simply that we are wrong — that we are misreading the trends. Others may think that we perceive the trends well enough, but that when Canadians see where those trends are leading — to a Montreal of perhaps three million people and a Toronto of comparable size — they will recoil in horror, mend their ways, and initiate a process of decentralization.

We have a great deal of sympathy with those who would attempt to limit the size of cities and divert growth away from the larger metropolises into smaller places. Advocates of this course have powerful arguments on their side. When they claim that in the long run, and all things considered, their way would be best and cheapest, we suspect that they may be right. If the full social costs are taken into account, locating a major proportion of a country's industry and population in a few large centres may indeed be uneconomic, as well perhaps as a dangerous thing to do from a defence point of view.

At the same time, we must be realistic. Twenty-five years seems all too short a space in which to accomplish such a giant step forward in human rationality. For some centuries, cities in general have gone on getting bigger, adapting their modes of growth to technological and other change, and defying every sort of anathema, prediction of doom, and plea for common sense. William Cobbett, writing in the early part of the nineteenth century, referred to London, then little if any more populous than Montreal and its suburbs in 1956, as "the Great Wen". What epithet would he coin today? The complex attractions of the metropolis, with its multifarious demands for goods and services, its pool of skilled labour, and its variety of diversions and conditions of life, must never be underestimated.

Developments in road transport and energy supply have, certainly, gone far to loosen the pattern of industrial, commercial and residential

* Apart, that is, from those major assumptions regarding war, depression and government policy which are common to all our forecasts.

location. They have made decentralization more feasible for many lines of activity and they have brought welcome new industry to many small towns. But one of their major results has been to produce a new kind of big city — the Los Angeles kind. Sprawling, patchy, less a city perhaps than an urban region, this post-Henry-Ford phenomenon is yet a broadly recognizable entity, with many of the old urban problems and some new ones besides.

We conclude therefore that while opportunities to spur on real decentralization should not be missed, Canadians should expect their larger as well as their smaller urban agglomerations to double or more than double in size. This could be a very bad thing; but it need not be nearly as bad as it sounds, provided adequate resources of energy and intelligence are thrown into the task of recognizing, studying and influencing the forces of urban growth.

Aspects of Urbanization

We may, in appearance, have wandered away from our subject. But not in reality. To a large degree, the provision of housing and social capital requirements over the next quarter century will consist of the extension and revamping of the urban environment — that environment in which most Canadians will spend the greater part of their lives.

What sort of places are Canada's larger centres of population today? We cannot, quite obviously, attempt to answer this question fully here. History, geography, and patterns of economic development have made each of Canada's bigger cities and urban areas importantly different, one from another. There is probably no single generalization or prescription for betterment that can be applied without qualification to them all. And yet there are features and problems common to many. Perhaps the easiest way of stating what some of these are is to describe, in a crude and oversimplified way, an imaginary but not altogether untypical Canadian metropolis — a place of some size, let us suppose, which has experienced an average share of post-war prosperity and growth.

To begin at the centre, there is the downtown business district, containing most of the larger stores, offices, banks, cinemas and public buildings. Signs of growth are evident: many of the buildings are new and larger than the ones they replaced. This district has expanded, both outward and upward. The daytime population density has increased, and the density of traffic has increased even more, reflecting a greater per capita ownership of motor vehicles. Many of the streets are now one-way, curb parking has been severely restricted or banned altogether, and some off-street parking facilities have been provided. All these developments have helped, but they have not been enough to arrest an underlying tend-

ency for the traffic situation to become gradually worse. One effect of this worsening has been to speed up the relative movement of commerce and industry to the suburbs. As a group, the downtown stores are doing a larger volume of business, but it is not as large a share as it used to be of the total business. A number of leading businessmen, together with the mayor, the city planner and others, are becoming seriously concerned over the future of the entire district.

Ringling the centre is a belt which contains some of the oldest and least desirable housing that the area has to offer. Looking back toward the centre, one sees in places a striking contrast of slum and skyscraper. Not all of the structures in the district are housing, and not all of them are in bad condition; indeed, the observer's principal impression is likely to be one of confusion and patchiness. Essentially incompatible land uses — an auto body shop, say, and a multi-family dwelling — huddle unhappily together. The old industrial and warehousing quarter and the coal and railway complex are all too close at hand. The proximity of these and of the downtown "core" makes for heavy flows of the noisiest and most earth-shaking sort of vehicular traffic. Like its structures, the district's people are a varied group: not all, by any means, resemble the conventional picture of slum-dwellers. Some, for example, are recent immigrants who could afford to live better, but who are economizing in order to build up a stake. As a whole, however, the district accounts for much more than an average share of the city's expenditure on social services and policing, as well as on fire protection.

As one moves further outwards, the houses, though still mostly quite old, become larger and less crammed together. Part of this ring is where the Victorian and Edwardian "carriage-trade" used to originate, and even today a measure of spaciousness and dignity remains. Some of the houses continue to be occupied by single families; others, however, have been converted into apartments and offices. Still others have been torn down — not always without protest — to make way for new apartment blocks. Young families have tended to move away to the suburbs, with the result that there are not so many children about as there used to be. Some of the schools actually have capacity to spare.

The next ring (no real Canadian city, of course, is ever this geometrically precise) consists of the erstwhile suburbs of the first four decades of the twentieth century. For the most part, these are now thoroughly built up and "citified", with a good range of municipal services and amenities: paved streets, curbs, sidewalks, street-lights, sewers, water-mains, transit service, elementary and secondary schools (including two technical institutes), police and fire stations, parks and a couple of branch libraries. The pattern of streets is mostly a monotonous grid, none too well adapted to the steadily increasing traffic load it has to bear. Some

of the wider streets combine the functions of urban arteries, highway connections, and secondary commercial districts. In the morning and evening rush hours, they fail to perform any of these duties satisfactorily.

From here on, the picture becomes much more varied. The density of population and of structures tends to thin out, but the thinning does not occur smoothly or evenly. Wherever there is a good highway, the built-up area ribbons out along it, generating local traffic and greatly reducing the road's capacity as a medium and long-distance artery. There is no regular or well-defined periphery. In some places, sub-division has leapfrogged clear into the open country. The structures are of many types and qualities. There are some semi-rural "Jerryvilles", havens from city taxes and building by-laws, where people have built or are building their own houses, in stages, on minimum budgets. There are streets of one-and-a-half-storey boxes, dating from the early post-war period; there are \$30,000 ranch bungalows and split levels on half-acre lots; and there are many other categories of housing, including some apartment blocks. There is industry: long, low, often attractively landscaped plants, freed from the limitations of downtown congestion and land costs, and adapted to modern, mechanized methods of handling and production. There are shopping centres, and there are the usual gauntlets of gas stations, motels and hot-dog stands. All this, sprawled over a vast acreage which was once mainly devoted to market gardening and dairy and chicken farming, and which still is agricultural in spots.

As a whole, the fringe of "Metropolis" amounts to a major manifestation of post-war prosperity and growth. All the more striking, therefore, is the fact that much of it — the outermost part, especially — is decidedly poor in municipal amenities and services. In the 1920's, housing construction tended to follow the extension of at least the basic services: now the reverse seems almost more true. Much of the road and street mileage is rough and unpaved, without curbs or sidewalks. Ditches, as deep in places as a small child is high, are too often the only storm sewers. For many householders, water and sanitation is a matter of individual wells and septic tanks, both of varying reliability.* One large, outlying development boasts a community well, water-mains, sewers, and a "package" disposal plant. These worked admirably for a time: now, however, as the development grows, the basic water supply is giving cause for concern, while the disposal plant has become overloaded and is contributing to the pollution of a once pleasant stream. Throughout the fringe, schools, though new, are moderately to badly overcrowded.

* A Central Mortgage and Housing Corporation study has shown that in 1956, some 29 per cent of the population of the 15 census metropolitan areas was largely unprovided with sewer service. Some 41 per cent of the population of 21 other major urban areas lived in largely unsewered municipalities. See Central Mortgage and Housing Corporation *Sewerage Service for Urban Housing in Canada*, Ottawa, 1957.

Police and fire protection exists, but is thinly spread. Transit service is reluctantly and sparsely provided, at a financial loss. Curiously enough, in view of the sprawling, land-prodigal nature of the area, there are large residential tracts in which little or no space has been left over for parks.

One might think that these shortages were simply a result of the haste with which development had gone forward and that most of them would be corrected before very long. Unfortunately, one cannot be altogether sure of this. Even less can one be sure that when the shortages are made good, the total result will prove to have been an attractive and reasonably economic extension of Metropolis. Already it is becoming obvious that much of the fringe — there are honourable exceptions — has developed quite haphazardly, in such a way as to make the provision of proper municipal services far more difficult and expensive than it really need be. Moreover, for all that the fringe's location and character have been made possible by the automobile, not enough account has been taken of the needs and habits of that vehicle. Many of the street layouts and distributions of land use generate unnecessary vehicle movement or make insufficient separation between through and local traffic. This will become clearer as development continues and traffic increases.

A key fact about Metropolis is that, notwithstanding a large-scale annexation some years ago, more and more of the growth has been occurring outside the boundaries of the city proper. To illustrate some of the significance of this, we may point to "Edgetown", one of the less favourably situated fringe municipalities. In 1945, Edgetown was predominantly rural (and indeed still is nominally organized as a rural municipality). When the first new housing developments appeared, they were welcomed: the municipality's tax revenues were enhanced, and farmers' regrets at losing their land were mitigated by the prices they received for it (although some now fervently wish they had held out longer). As time went on, however, the council became painfully aware that for a municipality, urban housing is far from clear gain. The new residents began to demand good schools and a growing list of expensive services and amenities. When they first moved to what was then almost the country, they probably did not expect to need so much in the way of city-type facilities. But they changed their minds.

Now, with much of the best land already taken up, the municipal fathers are of the opinion that, housing shortage or no, they should have held back residential development and corralled more industry. A good, fat proportion of industrial assessment, yielding more in taxes than it received back directly in services, would have provided extra revenue with which to service the residential areas. "Industriurbia", another fringe municipality next door, acquired just such a proportion and is doing well out of it, an ironic feature of the situation being that not a few of Edge-

town's residents settled where they did in order to be close to their jobs in Industriburbia (Metropolis city has a similar complaint).

However, it is too late now: Edgetown finds itself with comparatively high residential taxes, low residual borrowing powers (these are determined by the provincial government, largely on the basis of assessment), and a big backlog of capital works. Developers approaching the council with subdivision proposals get a cooler reception than they did formerly: their plans are only approved on condition that they undertake to provide paved roads, curbs, and sewer and water laterals. In effect, the financing of local improvements has been shifted from municipal debentures to National Housing Act mortgages. The citizens continue to pay, but as homeowners rather than taxpayers.

Some Edgetown residents have begun to inquire into the possibility of annexation to the city. The city authorities are not, on balance, enthusiastic. They would like, certainly, to exert more control over development in the fringe. For some time, they have been unhappy about the way things are going out there. They have been aware of definite adverse repercussions on the city; moreover, they have a suspicion that sooner or later, in one way or another, they will find themselves responsible for servicing much of the present fringe — for, as they put it, “straightening out the mess”. But to take on Edgetown, or a large part of it, would be to take on a formidable backlog of capital expenditure, and the city has a backlog of its own. The previous annexation has not yet been fully digested; there is still some vacant land within the city limits; two large new residential developments will need servicing. Work has just begun on a major expressway. A slum clearance and urban renewal project in the near-downtown district is being discussed. The city is being pressed to start treating its sewage instead of discharging it raw into the “Metropolis River”. The city, therefore, is chary of annexing more territory just at present — particularly territory which, demonstrably, would cost more to service than it yielded in taxes at prevailing city assessments and rates. If the proposed annexation took in a larger area — if, for example, it included Industriburbia, together with “Manybucks Village”, which has no industry (heaven forbid!) but which manages to support an excellent school and what its residents consider to be an adequate level of other services — then, perhaps, it would be more worth while — some day. Both Industriburbia and Manybucks would probably fight annexation. The city's case would have to be carefully prepared.

This, then, is Metropolis — fundamentally, an expanding social and economic entity, with numerous ties of interdependence between its principal parts — governmentally, something else again. As a mechanism, or an organism, it has serious defects. With the inestimable benefit of hindsight, one can see many ways in which its post-war expansion could have been better managed.

We are guilty of overdrawing, as well as of oversimplifying. Many large urban centres in Canada have managed to handle their growth problems a great deal better than our imaginary Metropolis. Some cities were fortunate enough to begin the post-war period with overextended boundaries inherited from previous booms, and with large tracts of land acquired through tax defaults. Advantage was taken of this circumstance to exert a close and farsighted control over new development. Nevertheless, many of the problems and situations which we have described will be familiar to numbers of Canadians. Examples of them, or of problems and situations very like them, exist today and can be readily identified. We would ask our readers to consider whether, on the assumption that our forecast of urban growth is broadly correct, the manner in which many Canadian centres have expanded and still are expanding should not be a subject of serious public concern.

Urban growth is a complex thing; it changes character over time and has a way of resisting or eluding most panaceas. We will not undertake to say either what form Canada's larger cities are likely to take by 1980, or what form they should take. Possibly a roughly concentric arrangement of Metropolis plus green belt plus well-planned and semi-self-sufficient satellites should be the ideal. Possibly something else will prove to be more in accord with the social and technological facts of life twenty-five years hence.

It does seem to us, however, that if the expansion of large urban areas is ever to be brought under an adequate degree of rational control, it will have to be done by governments or joint authorities exercising jurisdiction over all or most of their respective areas. Annexation, amalgamation, metropolitan federation as in Toronto — there are various alternatives. The essential is that the big problems, the area problems, be dealt with on an area basis. When numerous individual municipalities attempt to handle such problems without reference to any joint or overriding authority, it is virtually in the nature of things that they should get at cross-purposes with one another. It is also quite likely that when, as a means of resolving the impasse, some large-scale annexation or other form of union is proposed, one or more of the affected municipalities will balk, judging that it has more to lose than to gain. This, however, may only be true from a narrow, short-run point of view. The great majority of the area's citizens, including many residing in the recalcitrant municipality, may be in favour of going ahead. If such is the case, and if the entire matter has received adequate study and publicity, there would seem to be justification for the provincial government concerned to act in the interests of the majority.

It may be that the pattern of urban growth in some parts of Canada will become so extensive as greatly to exceed the scope of even the largest practicable municipalities or municipal federations. Already, there appears

to be some need for regional planning bodies with wider geographical purviews than most which have hitherto existed and with responsibilities relating to agriculture and other non-urban interests. As time goes on, these bodies may have to be given additional powers and functions. How this is to be done while maintaining the essentials of local democracy may be one of the knottier problems of the future.

For some persons, planning is a magic word; for others, it is an obnoxious one. Our own view is that trained, professional town planners are valuable people indeed (they are also, incidentally, very scarce people just at present), provided they are put to work in the right context. They have special skills and techniques; they are apt to possess as well a highly desirable comprehensiveness of outlook. But too much should not be expected of them. They cannot simply be hired and relied upon to produce glittering solutions from their mysterious boxes of tricks. To paraphrase Clemenceau, planning is too important a thing to be left entirely to planners — and with this, most planners would heartily agree. The most successful examples of planning have involved a method of approach, a way of doing things, which has permeated just about every aspect of the municipality's operations, including — this is especially important — the financial aspect. Good municipalities and school corporations have always done a considerable amount of planning, with or without professional assistance. To them, much of what modern proponents of planning now advocate will seem merely an enlarged and more formalized version of what they have been doing all along. At the risk of being caught in the crossfire of contending schools of thought, let us attempt to summarize what the "new look" broadly is. When an area has been subjected to a thorough and continuing survey;* when, on the basis of that survey, a zoning, land-use and capital improvements plan has been drawn up, flexible yet resistant to capricious or doubtfully motivated alterations; when to this have been added a zoning by-law, another by-law controlling subdivision, and a long-term capital budget; and when the whole thing has been examined, discussed and accepted by department heads, council and the public — then there is planning, in the full, mid-twentieth-century sense of the term.¹

Hitherto, the long-term capital budget has been the most commonly missing link in the chain. Now, however, it is making a more frequent appearance in Canada. It is, of course, a forecast, and like all forecasts may be falsified by events. In any given year, the municipality may be able to raise more or less money than it had anticipated. Changing circumstances may necessitate major revisions. But the great advantage of a capital budget is, firstly, that taking one year with another, it keeps physical planning and programming within hailing distance of the financially possible;

* A planning survey — not merely a civil engineering one.

and secondly, that if it is properly conceived, it is based on a carefully worked-out system of priorities, so that if items have to be cut, they can be those items whose postponement least disrupts the co-ordinated advance.

Mention of long-term budgeting makes this an appropriate point at which to ask whether the one-year term for elected municipal officials — still very prevalent in Canada, though not so prevalent as it once was — is really long enough in a city or urban area of any size. It has, to be sure, an earthy, Jacksonian flavour about it, and may still be a good way of keeping small rural councils close to their constituents. But to ask men and women to be responsible for expenditure running into the heavy millions, to make or approve plans extending for many years into the future, and yet to be prepared to face the electors every 12 months, seems rather a tall order. The temptation to defer difficult decisions to the next council, and then again to the next, must be very great — all credit to those who resist it. Perhaps democracy and the requirements of statemanship might now compromise at a two or even a three-year term.

Another feature of urban municipal government which could usefully be re-examined is the degree of separation which still commonly exists between the business of planning and building roads and streets and the business of providing public transportation. "Transit utilities should be organized as business enterprises, and they should pay their way" — this dictum comes down to us from the days when the electric tram was Everyman's transportation and the fastest thing on city streets. Obviously, conditions have changed. The private automobile has not only cut into passenger volume; it has also crowded the streets in such numbers as to make transit service slower and less dependable, and it has stimulated the growth of low-density, automobile-oriented suburbs where buses run at a loss. Meanwhile, the five-day week has reduced Saturday revenues, and television has kept many former evening riders at home. Notwithstanding all these developments, urban municipalities still tend to insist that their transit utilities be self-supporting, even to the extent of paying municipal taxes on their properties. Almost anything, it would sometimes seem, is preferable to a transit subsidy. In practice, the "almost anything" has usually taken the form of higher fares (which may not be unreasonable, having regard to what has happened to prices and wages in general) and of the reduction or elimination of less patronized runs. A rigorous and sustained application of the self-support principle might just possibly leave some Canadian cities with virtually no transit at all.

We have no pat solution to offer for the urban traffic problem. Conditions vary greatly from city to city, and different remedies will no doubt be appropriate in different places. Two generalizations do, however, seem valid. The first is that the value of a transit utility is not all to be found in its balance sheet. The utility may be losing money in a strictly financial

sense, but it may be saving the city a much larger sum in street and traffic expenditure. Few would deny that it takes more streets, more traffic lights, more policemen and more parking space to move 1,000 people in private cars than it does to move the same number in transit vehicles. This leads to a second generalization, which is that the business of moving people and goods about large urban areas, whether by public or private vehicles, should by now be regarded as a single problem. As in any field of government expenditure, the overriding objective should surely be to give the taxpayer value for money — to spend public funds where they will do the most good, which in this case presumably means where they will do most to relieve congestion, meet the demand for movement as it grows, and promote desirable patterns of urban living.

Viewed in this light, mass transit service may be deserving of much stronger financial support than it has received in the recent past. Over the next twenty-five years, there are likely to be times and places where the provision of truly rapid and attractive transit service — subways, monorails, or express buses running on exclusive strips or streets — offers a more fruitful field of expenditure than any immediate alternative. It would be the greatest of pities if municipal authorities were to be discouraged from considering such possibilities by theories of transit finance dating from the street-car age, or by unrealistic systems of provincial grants. We are hopeful that provincial governments may come to the conclusion that if they are to make grants for transportation purposes at all, they can save themselves a lot of money by not restricting their grants to roads but, instead, making them available for whatever promises to be the most suitable and the most efficient facility in each particular case.

The question of railway commuter service might be looked at from a similar standpoint. With good reason, railways have come to regard commuter service as a notorious money-loser: expensive rolling stock and terminal facilities must be kept in being for two brief rush hours. But here again, the balance sheet does not necessarily tell the full story. Certain railway lines in some of the larger metropolitan areas are potentially well located for commuter service.* In a few cases, the provision of public funds to make a frequent and attractively priced service modestly remunerative to the railways might do more at less cost to relieve traffic problems than any alternative expenditure.

All this is not to deny the need for efficient systems of urban roads and streets. Whatever can be done to improve and extend transit and commuter service, the volume of motor traffic in urban areas must be expected to grow enormously; and its accommodation will demand the expenditure

* Montreal, of course, has had large-scale commuter service for many years. There is also one well-patronized run in the Toronto area.

of many hundreds of millions of dollars. It is all the more important, therefore, to base all outlays for transportation on the broadest possible study and to make sure that the money is going to the right places.

The problem of urban traffic is not a little related to the problem of urban renewal and redevelopment. The terms "urban renewal" and "urban redevelopment" have come into increasing use of late. Sometimes, they appear to be employed almost interchangeably. We are informed, however, that there is a distinction between them. "Urban redevelopment" means any replacement of structures occupying urban land. It can be applied to a major slum clearance and rehousing project such as Regent Park in Toronto, to the replacement of a small office building by a new and larger one, or to the tearing down of an elderly mansion to make way for a parking lot. To some degree, urban redevelopment is always going on, in every city. "Urban renewal" has a broader meaning. It embraces, not just redevelopment, but the repair, rehabilitation and improvement of structures. It means the whole process by which the older parts of urban areas adapt themselves, or should adapt themselves, to changing circumstances. It is the process of keeping up to date. Like redevelopment, it is not a new discovery by the planning profession, but has been going on for centuries. The trouble is that what may be called "spontaneous renewal" rarely occurs soon enough or comprehensively enough. Whole districts or large parts of districts slip downhill into a condition of blight. Other districts, while not yet blighted in any obvious sense, remain set in a form which grows less and less suited to the modern, automotive way of life. Here, perhaps, is the basic problem of the downtown business district, which renews itself piecemeal and sporadically, but which does not undergo the fundamental modernization that it really needs.

Canadian urban municipalities have been showing increasing interest in large-scale redevelopment projects. Procedures vary: usually what happens is that a tract of land in a blighted area is "assembled" by purchase or expropriation, cleared (although some of the better structures may be allowed to remain), then turned over to public or private agencies for housing or other purposes. Just what purposes are appropriate will depend on the location of the land, and on the way in which the urban area which surrounds it is developing. Ideally, the redevelopment project should be preceded by thorough study both of the district in question and of the larger entity of which it forms part. An important question, of course, is where and how the former residents of the cleared district are to be rehoused.

We anticipate that the larger issue of urban renewal will require considerably greater attention than it has received so far. Renewal, as we have indicated, involves not only redevelopment and the elimination of

existing blight, but the anticipation and prevention of future blight. Over the next twenty-five years, large sections of Canadian cities, notably those built up during the Wheat Boom of 1896-1913, will be reaching the potential danger point, if they have not done so already. By 1980, it is estimated, something approaching one million dwelling units of the present housing stock will be 75 or more years old.² To assume that increasing national wealth and the normal processes of urban evolution will largely take care of the problem would in our view be most unwise. Prosperity and a high average standard of living are not a sufficient cure for slums and blight: the past ten years have shown that. The remedy must be more deliberate and specific.

The ultimate salvation of downtown districts may lie in renewal on a fairly massive scale. Many informed observers are coming to think that so long as the basic alignment of these districts remains what it is — a system of right-angled canyons in which pedestrians are pushed about by big, bossy motor vehicles, and in which few people, afoot or otherwise, can go to their destinations easily and pleasantly — the underlying malaise will continue, with expressways, parking garages and transit improvements proving in the end to be mere palliatives. It has been proposed that “downtown” be converted gradually into one or a series of pedestrian islands, attainable but not penetrable by motor vehicles, an exception being made for pick-up and delivery vehicles, which would use underground tunnels. On arriving at the edge of an island, the motorist would park his car in one of a ring of parking lots and garages, then proceed the rest of the way on foot, possibly with the aid of moving sidewalks.

This proposal is past the pipe-dream stage: it is actually going to be tried in Fort Worth, Texas, and some of its aspects are embodied in the plans for the Place Ville Marie in Montreal. Proponents of the idea have in mind a good deal more than a drastic means of dealing with traffic congestion. They visualize a city centre that would have more to offer the human spirit than the spectacle of huge, monotonously regimented blocks of physical capital and rivers of nervous horsepower. New and more interesting groupings of buildings would gradually make their appearance. There would be parks and plazas, a place for sculpture, greenery, and outdoor recreational facilities. Like a few of the more elaborate suburban shopping centres today, “downtown” would have extra pulling power because it was good to look at and pleasant to wander in. It would be a logical location for new theatres and concert halls — for civic centres.

We do not wish to advocate any particular course of action with respect to downtown areas. We do suggest, however, that in some of the larger Canadian cities the problem has reached, or soon will reach, a stage where only large, imaginative solutions are likely to have much hope of success. Cautious, *ad hoc* measures may relieve traffic congestion temporarily, but do little to revitalize the patient.

Changes in the Rural Community

Paralleling the urbanization of recent years has been a decided alteration in the character of rural communities in many parts of Canada — an alteration which has had an important bearing on housing and social capital requirements. Here again, generalizations are dangerous; one can say, however, that such things as the movement of people away from rural areas to cities and towns, the mechanization and enlargement of farms, and improvements in transport and communications have had a significant impact on rural life in all the major economic regions of Canada. Rural people have become less cut off, less different in outlook from city people. As farming has taken on more of the attributes of business enterprise, so the persons engaged in it have tended to acquire business ways — urban ways — of thinking and acting.

The implications for housing and social capital are most readily apparent in the Prairie Provinces, where the processes of farm enlargement and mechanization, coupled with rural depopulation, have gone farthest.³ Many people have moved out of agriculture altogether; many others have found it possible to take up residence in towns and cities while still continuing to farm. Those who still live on the land are no longer content with the isolation and the rudimentary services and amenities of an earlier day. They want better roads, schools, and medical and hospital services. They are prepared to travel considerable distances to buy, sell, and have their machinery repaired. They are more apt to drive through small villages and hamlets and continue on to larger centres. Like the farms, the “natural” regional trade and service areas have become fewer and bigger.

All this has had an important effect on the amount and quality of social capital provided in rural areas, and on the way in which it is provided. Many responsibilities which once belonged to local units of government have passed in whole or in part to provincial governments. There has also been a pronounced growth of larger, special-purpose units of local administration such as health regions, hospital districts, and consolidated school districts. It has been found better to handle these functions in relation to larger geographical areas. Where the old local school district could aspire only to a one-room, one-teacher school, the new consolidated district, knit together by school bus service, can provide a properly staffed and equipped institution capable of giving rural children the education they need to engage in successful modern agriculture or to take up good jobs in cities and towns.

In many instances, the one unit of administration which has not been enlarged is the municipality proper. Informed observers believe that there is often a case for enlargement here too, particularly in areas which have undergone substantial depopulation. Bigger municipalities, with dimensions keyed to the automobile rather than the horse and buggy, could achieve

certain economies of scale. They would be better placed to hire trained personnel, and to make the fullest and most economical use of modern mechanical equipment. Where large, special-purpose units have been superimposed on groups of small municipalities, difficult financial and administrative problems are likely to arise. The taxpayer may be hard put to determine just what he is paying for and whether he is being treated equitably. If municipalities and special units were amalgamated into single large units, or at least given co-terminous boundaries, a welcome degree of simplification would result.

As we have stated, we anticipate further significant changes in the agricultural industry, and in the pattern of rural life. It will be important from a social capital standpoint to examine the structure of local government in the light of these changes, and to undertake reorganization where it seems appropriate.

Forecast of Housing and Social Capital Expenditures

The foregoing sections will have provided some background against which to assess our forecast of expenditure on housing and social capital. This forecast, which is presented in Table 15.2, we regard as a conservative one. It has been built up item by item, mostly on the basis of somewhat higher than average 1955 standards of adequacy. It makes full allowance for population growth, but only partial allowance for backlog and replacement needs, regarding which information is scattered and incomplete. The possibility, perhaps the probability, should be kept in mind that Canadians generally may come to demand a quality, range and expensiveness of housing and social capital much exceeding even the best standards of 1955, in which case the forecasts given in Table 15.2 may prove to be considerably too low.

In brief, we expect that about \$100 billion (at 1955 prices) will be spent on new housing and social capital over the twenty-five years ending in 1980. Housing will account for about \$45 billion to \$50 billion, roads and streets for about \$20 billion, waterworks and sewerage systems and schools and universities may each require about \$5 billion and hospitals nearly \$3 billion. These amounts, it should be emphasized, relate to requirements of new physical capital only. In all the fields covered, many more billions will have to be spent on such things as staff wages and salaries, maintenance, and interest charges.

Examined in conjunction with our projections of over-all output and expenditure, the forecast suggests that housing and social capital investment may form a gradually declining proportion of Gross National Expenditure. By 1980, annual investment in housing and social capital may be accounting for between 6 per cent and 7 per cent of Gross National Expen-

Table 15.2

FORECAST OF GROSS NEW INVESTMENT IN HOUSING AND SOCIAL CAPITAL

(in billions of 1955 dollars)

A — by items		1956-80				
Housing.....		43.7				
Social capital:						
Hospitals.....		2.7				
Schools and universities.....		4.2				
Roads and streets.....		19.5				
Waterworks.....		2.4				
Sewerage systems.....		2.7				
Airports.....		1.3				
Churches and other religious buildings.....		1.5				
Other buildings.....		8.4				
Other construction.....		2.5				
Other machinery and equipment.....		2.3				
Sub-total: social capital.....		47.5				
Grand total: housing and social capital.....		91.2				
B — by ten and five-year periods						
	Actual	Forecast				
	1946-55	1956-65	1966-70	1971-75	1976-80	
Housing.....	10.2	14.0	8.4	10.0	11.3	
Social capital.....	9.6	16.2	9.0	10.3	12.0	
Total.....	19.8	30.2	17.4	20.3	23.3	

SOURCE: Yves Dubé, J. E. Howes and D. L. McQueen, *Housing and Social Capital*, 1957, a study for the Commission, Chap. 10, Tables 59 and 60, pp. 150 and 152.

diture — about the same as the average for the 30 years ended in 1955 which included the depression and the War periods, but considerably less than the average for the five years 1951 to 1955.

It would seem, then, that if we are broadly correct in our expectations regarding general economic growth, providing housing and social capital of a good 1955 standard may become progressively easier. But the standard may well rise. Indeed, we would regard it as entirely appropriate that as Canadians become wealthier, they should expect better schools, roads and houses — that they should come to evince more interest in paying for such things as concert halls and civic centres. We would not be surprised if housing and social capital expenditure as a proportion of Gross National Expenditure turned out to be higher than our forecast appears to indicate.

If our basic assumptions are sound, expenditure on most kinds of social capital will probably show a fairly continuous rise over the next twenty-five years. With respect to housing, however, there may be something of a lull in the early part of the period. The reason for thinking this is that for the next few years, the persons most likely to be marrying and forming families will be the children of the depression and early War years — periods of low birth rates. The forecast of family formation in Table 15.3 shows a distinct dip from the high formation rates of recent

years (though the reader's attention should be drawn to the immigration assumption involved). Not, perhaps, until the mid-1960's will new families be formed as fast as they were being formed in the early 1950's.

This need not mean a proportionate dip in housing construction. The replacement demand for housing may increase: there may be a rise in the rate at which old housing is destroyed or abandoned. Technological improvements in the house-building industry, coupled with increasing incomes, may put new housing within the means of a larger proportion of the population.

Table 15.3

FORECAST OF NET FAMILY FORMATION IN CANADA
(based on assumption of 75,000 annual net immigration)

		Thousands of families
1951-55	(Actual).....	443
1956-60	348
1961-65	414
1966-70	(Forecast).....	500
1971-75	605
1976-80	683

SOURCES: 1946-55, Central Mortgage and Housing Corporation, *Housing in Canada*, and *Housing Statistics* (quarterly).

1956-80, Yves Dubé, J. E. Howes and D. L. McQueen, *Housing and Social Capital*, 1957, a study for the Commission, Chap. 3, Table 10, p. 54.

It may be, however, that housing construction will for a time show some tendency to level off or even decline. If this does in fact happen, the next five or ten years may present an excellent opportunity to make some headway with slum clearance and urban renewal — to launch a determined attack on urban blight before the high birth rates of the early post-war years are reflected in a sharp new upsurge in family formations. Perhaps too it will be a good period in which to eliminate the large backlog of urban land servicing — to catch up with accumulated needs for paved roads, sidewalks, and sewer and water facilities.

Another field in which capital construction may not show a continuous rise throughout the forecast period is that of education. Our expectations regarding school and university enrolment (based, of course, on our population forecast) are summarized in Table 15.4, where the effects of the post-war increase in birth rate can be traced diagonally from the upper left to the middle right. The "big bulge" is already passing through the elementary schools, as many parents and school trustees can testify. It will hit the secondary schools with greatest force in the early 1960's, and the universities four or five years later. "Bulge" is perhaps a misnomer here, since there will be no letdown after it has passed: enrolment will simply increase rather less rapidly. Construction of new buildings will continue, but at a somewhat less hectic pace. We anticipate that over the forecast period enrolment in secondary schools and universities will

increase faster — in the case of universities, much faster — than the teenage population as a whole. Present-day enrolment in secondary schools is equivalent to just over 50 per cent of the population of 14 to 17 years of age, inclusive: by 1980, the proportion may be 70 per cent. Between 7 per cent and 8 per cent of persons 18 to 21 years of age are now in university; perhaps by 1980, some 15 per cent of the same age-group may be there.

Table 15.4

FORECAST OF SCHOOL AND UNIVERSITY ENROLMENT
(based on assumption of 75,000 annual net immigration)

	Elementary	Secondary	University ^a
	(thousands of students)		
Estimated enrolment in 1954-55	2,534	504	67
Forecast enrolment in 1979-80	4,352	1,289	267
Net Increases in enrolment:			
1954-55 to 1959-60	584	163	27
1959-60 to 1964-65	403	213	39
1964-65 to 1969-70	208	180	50
1969-70 to 1974-75	235	112	46
1974-75 to 1979-80	388	117	38
1954-55 to 1979-80	1,818	785	200

^a Includes enrolment in the last four years of classical colleges in the Province of Quebec.

SOURCE: Yves Dubé, J. E. Howes and D. L. McQueen, *Housing and Social Capital*, 1957, a study for the Commission, Chap. 5, Table 22, p. 73; Table 23, p. 74; and Table 26, p. 84.

Conclusion

This report is concerned essentially with economic questions but we would be remiss if before concluding this chapter we did not state our clear appreciation of the human problems involved in the present process of urban expansion. Such problems sometimes assume a rather different form in large cities than they do elsewhere. The needs of families and the solitariness of individuals give rise to social problems that can in part at least be met by the provision of recreational and cultural facilities. Undoubtedly as hours of work are shortened and Canadians have more time for leisure the need for such facilities will increase rapidly. Fortunately perhaps the tastes, desires and habits of people are not all the same and their needs for recreational and cultural facilities differ correspondingly. Examples of the kind of requirements we have in mind would include supervised playgrounds for our young people, community centres, hockey rinks, football and baseball grounds, auditoriums, art galleries, symphony orchestras; yes, and race-tracks, and stadiums for spectator sports.

No doubt sympathetic attention will be given to the social problems we have mentioned and to the measures and facilities required to relieve them. But in the last analysis, solutions will depend in an important degree upon the provision of adequate finances and, until the problems of muni-

cial finance have been dealt with satisfactorily, limited progress only is likely to be made. It was not our responsibility, as we understood it, to undertake an exhaustive study of municipal finance, or, indeed, of government finance in general. However, we have some tentative suggestions to make in connection with municipal finances — although not about the division of tax revenues between the three levels of government — which we have set forth in Appendix I in the hope they may provoke discussion and some further study of this highly important question.

So far as the long-run prospects for providing an adequate supply of housing and social capital are concerned, we find ourselves fairly optimistic. The proposition that Canada as a nation is now, or will be in the future, too poor to afford proper schools for its children or adequate sewage disposal for its urban centres we reject out of hand. Nor do we believe that a people who contrive to own several million motor vehicles are financially unable to construct an efficient system of roads and streets for those vehicles.

The real problem to be faced by Canadians in this field is not going to be one of fundamental inability to pay. It will be, rather, one of deciding what proportion of a growing national income should be devoted to the building of those things which only the community can provide, and of developing the best possible fiscal and administrative arrangements to make that decision effective. We have put forward in Appendix I a few suggestions as to what some of these arrangements might be. As we have said, our main hope in doing so is to stimulate keen and widespread study of the entire financial and administrative side of housing and social capital. If we have laid an apparently disproportionate amount of emphasis on the problems and functions of local government, it is because we feel that here, most of all, new thinking will have to be done. In the increasingly urbanized society which is evolving, Canadians will be well advised to take a fresh and constructive interest in the affairs of City Hall.

PRODUCTIVITY AND OUTPUT

CANADA'S economic prospects may be epitomized by considering how great our national output may become over the next generation. We have referred to the environment in the world and particularly in North America which will stimulate and mould our economic development. We have considered the likely growth in our population, in sources of energy and several varieties of raw materials. We have examined in some detail the prospects for particular industries. We wish now to consider the total output that our growing labour force in this environment may be able to wrest from the resources at our command. How productive will Canadian workers be?

The growth in the average capacity of members of the labour force to produce goods and services implies rising standards of living and the possibility of improved welfare for all. Of course the price of progress is adjustment. Adjustments are always painful for some. But policies should be directed at easing the pain of adjustment rather than at thwarting progress. We argue at several points in this report for flexible policies that permit grasping of new opportunities and that assist those who must find new work or new places to live.

There have been instances in some countries of marked resistance — occasionally violent resistance — to the introduction of techniques and machines that enhance workers' ability to turn raw materials into goods. However, in our discussions with labour organizations in Canada we were impressed with the positive character of their attitude towards measures for improving productivity. There was, naturally and rightly, apprehension over the adjustment problems these measures entail, but the concern was to facilitate adjustment and thus earn the fruits of progress. We are most appreciative of the several very helpful submissions on productivity that we received from labour organizations.

The Productivity of Labour

The ratio of total output to the input of labour is usually referred to as the productivity of labour. This is, to some extent, a misnomer inasmuch as the ratio reflects as much the suitability and abundance of the materials and tools used by labour as the initiative, energy and skill of workers. The term is in common use, however, and we too shall use it in spite of its ambiguity.

We do not wish here to enter into technical details as to how the ratio has been defined for the purposes of our work nor into the difficulties of measuring the productivity of labour in individual industries and groups of industries. These matters are considered in some detail in the study *Output, Labour and Capital in the Canadian Economy* that will be published under our auspices. We should like, however, to offer a brief explanation of the meaning of the concept and to consider the principal factors which increase labour productivity.

The technical difficulties of measuring the ratio of output to input of labour arise largely from the lack of homogeneity of output and of labour input. If one could imagine an industry in which only one kind of output, say coal of a given grade, was produced in a single operation by labourers of equal skill, then provided that the effectiveness of workers did not vary from hour to hour, probably all would agree that a suitable measure of the productivity of labour would be the ratio of tons of coal produced to the number of man-hours utilized in its production. But there are no industries producing in a single operation only one kind of output of unchanging quality. Nor are there industries employing only one grade of worker whose effectiveness does not vary within the day or within the week. The measure of labour productivity with which we have worked is the ratio of the Gross Domestic Product* of an industry in a year to the number of man-hours employed in the industry in that year, with no distinction drawn between hours worked in regular time and overtime, for example, and with no distinction between the hours contributed by production workers and managerial staff. This measure is a compromise with the technical difficulties we referred to, but as such is like a very great many measures in economics. It may be added that we are not alone in having made this particular style of compromise in measuring labour productivity. The character of the indicator — Gross Domestic Product per man-hour — leads to certain technical difficulties in interpreting its changes. We shall refer to one or two of these below, but we wish first to discuss several broader influences that affect the ratio of output to labour input, however that ratio is measured.

The attitudes and skills of workers are major factors affecting the productivity of labour. Over the decades there has been a continuing improvement in the average number of years of schooling of the labour force. This has made it possible for workers to adapt to the employment needs of a technical age. While there remains and probably always will remain a great many tasks to be done that do not require great skill or even the ability to read and write, it is nevertheless true that our increasingly complicated technology requires skilled workers. Along with the steady improvements in the education and training of the labour force there has been an improvement in medical standards and physical well-

* This term is defined on page 316.

being of the working population. This has, of course, effects on productivity that are independent of attitudes and skills, but physical well-being undoubtedly contributes to a more energetic approach to the daily round. Offsetting this in some degree at least is perhaps an increase in the tensions of modern life adversely affecting general mental well-being.

There are, of course, continuing changes in working conditions that affect workers' attitudes and mental states. On the one hand, the development of modern industry has tended to replace the craftsman who fashioned his product from start to finish with the line worker who contributes but a few operations to the total job. Similarly we may recall that in earlier times there was less dissociation of management and workers than appears to be the case today. Enterprises were smaller and accordingly the individual worker could relate his contribution to the welfare of the enterprise as a whole rather more readily. More often than now, merit rather than seniority was the criterion for promotion. In like vein it may be remarked that a man's work formerly occupied much more of his day than is now the case and that consequently if he were to realize himself it would have to be at his work. Today, the worker toils fewer hours, can have many outside interests, and work becomes mainly a means permitting the cultivation of these interests. On the other hand, one can exaggerate the effects of the replacement of the craftsman. Individual craftsmen were never a large proportion of the total labour force, and the requirements for the exercise of skill in modern production are very large indeed. While in modern times we have indeed witnessed a conflict between management and other workers, a conflict that reflected their increasing dissociation in large industrial concerns, there is hopeful prospect that the future of labour-management relations will be characterized by increasing co-operation based on mature recognition from both groups that the success of an enterprise depends alike on the contributions of each. It is possible to exaggerate, too, the argument that the increasing diversity of men's activities affects adversely their productivity. The very shortening of the work day and work week must have reduced fatigue and boredom and so enhanced productivity. Moreover, if the increase in leisure has permitted men to cultivate other interests, it has also increased their demands for the goods and services required by those interests. Since work provides the means of acquiring cars and golf clubs, cottages and gardens, the stimulus to work hard and effectively is not necessarily dulled but likely sharpened by the reduction in the proportions of the day, week, year and lifetime spent on the job.

It is not easy to separate the myriad strands in the tangle of men's attitudes. Moreover, their attitudes are not unrelated to their skills. We feel that men are as acquisitive as ever they were and we know that they demand more complicated goods in greater abundance to satisfy their wants. We know too that they want more time for leisure. In considerable

degree men get more because they want more, because they are willing to work and save for more and because they are willing to acquire the requisite skills.

Ranking equally with skills and attitudes of workers in determining their productivity are the resources and tools at their disposal. The skill, acquisitiveness and love of farming of the western wheat grower would avail him little if he did not have suitable soil and climate for the cultivation of his crop. Without rich ores bearing nickel, copper, iron and uranium, without our great forests, without the western tracts saturated with oil and gas, without the mighty pounding of our waterfalls, we could not have our great natural resource and primary manufacturing industries. It is in these industries that productivity is highest in Canada. It is productivity in these industries above all that lifts our national average. But though nature has blessed us with many rich endowments, including an energizing climate, she has placed obstacles in our way. The great Shield in which so much of our natural wealth is stored, severs east from west. To build and maintain our vital national lines of communication over this rugged barrier we have had to divert capital investment which, if it could have been spared for other applications, would have added enormously to our productive capacity. Nature has not been niggardly, however. Canadians, on this account alone, are, and may expect to be, highly productive.

To acquire tools with which to work, it is necessary to save. Instead of using income to command goods for consumption, part of current income must be used to finance the production of tools if the nation's stock of capital equipment is to grow. By the standards of many other countries, Canadians are willing savers. Moreover, for many reasons, not the least of which is the attractiveness of our natural resources, other countries, particularly Great Britain and the United States have been willing to transfer saving to us enabling us to import capital. Accordingly we have been from time to time substantial importers of capital. Thus by dint of domestic saving and the import of capital we have accumulated the structures, the machinery and the transportation facilities which contribute so much to our productivity. In this year of writing, 1957, Canadians are just pausing to reflect upon one of the great investment booms in our history. This recent accumulation of capital has already stimulated output per man-hour and we doubt that the full measure of increase in productivity from this source has yet been realized.

In commenting upon some of the basic determinants of the productivity of labour we have referred to the attitudes and skills of workers and the stock of capital, natural and produced. Special mention should be made of the creative skill of the inventor and the daring skill of the innovator. The inventor and the innovator are key workers in a growing economy. By "inventors" we mean the Alexander Graham Bells and the Thomas Edisons, of course, but we also mean the host of those of lesser fame who

conceive new ways of doing old tasks, new devices, new tools and the many minor adaptations and improvements that make men's efforts more productive. The creative skills of the scientist, pure and applied, and of the alert, thoughtful man on the job are, in the interests of improving productivity, greatly to be prized and cultivated. In addition to the creative work of our scientists, engineers and technical workers, Canadians have been fortunate to have been able to import advances made in other countries and adapt them to our purposes.

The gains in productivity offered by the inventor would be still-born however if it were not for the innovator. It takes the enterprising spirit and executive ability of the innovator to breathe life into the offerings of the creative worker. It is he who decides to risk trying the untried. If productivity gains are to be made new endeavours must be launched, new techniques introduced and new equipment tested. We have our share of entrepreneurial talent in Canada and there are many here willing to risk their savings to offer it financial support. It must be recorded, though, that we have benefited greatly from the willingness of foreign entrepreneurs to launch and conduct enterprises in Canada.

Energetic, skilful, creative men and women working on rich natural resources with adequate tools and supported by adventurous business leaders with executive ability will produce a high and rising level of output per man-hour. This is the summing up of our comments on broad determinants of the ratio of output to labour input. When touching upon the measurement of productivity earlier we indicated that technical features of any measure would need to be considered in interpreting it. We wish now to refer very briefly to certain technical features of the measure we have adopted.

The measure of output used in the record of productivity in the various industries in Canada which was prepared for us is termed Gross Domestic Product (at factor cost).^{*} Unfortunately there were no direct estimates of this measure of output available for any year except 1949. The procedure used to obtain figures for other years was to multiply the 1949 figure for each industry by the most suitable index of that industry's production (based on 1949) that could be had. Since the procedure was carried through in considerable industrial detail, these estimates of output and the corresponding estimates of output per man-hour have been used by the authors of several of the studies prepared for us.

^{*} *Gross Domestic Product at market prices* differs from the more familiar concept "Gross National Product at market prices" only in that the former excludes foreign earnings of residents of Canada and includes earnings in Canada of non-residents, while the latter includes all income earned by residents and excludes all income earned by non-residents. *Gross Domestic Product at factor cost* is Gross Domestic Product at market prices less the amount of indirect taxes minus subsidies as these two items are defined in the National Accounts.

The procedure described above may be used in connection with industries that market goods or services having well-defined prices. These industries make up the agricultural and business sectors as defined in our work. In the remaining part of the economy, described as the "government and community services" sector, the very concept of output is clouded by the nature of the activities carried on and by the fact that they do not ordinarily yield a product or service that sells in the market place for a price. Accordingly the current value of output produced in this sector is reckoned very largely as the total of the wages and salaries paid. The corresponding constant-dollar value is customarily computed by dividing this current value of output by an index of wage and salary rates. If this estimate of output is then divided by the input of labour the ratio will be constant from year to year except for the effects of changes in the composition of the labour force employed in this sector. We have thought it necessary to go into this technical matter in at least this much detail so as to make it clear that there are very difficult conceptual problems involved in measuring the productivity of labour in the government and community services sector of the economy. If the exigencies of statistical practice require us to equate the percentage changes in the real value of Gross Domestic Product to percentage changes in the labour force employed in this sector, no one should conclude that we think the improvements in labour productivity, conceived in a general way, will be confined to the industrial part of the economy.

Turning once again briefly to measures of industrial productivity we wish to explain that productivity as we are defining it may change because of shifts in the composition of output within an industry and because of shifts in employment and output among industries within a group of industries. Since outputs and labour inputs of an industry are not homogeneous, it is possible for the ratio of output to labour input to increase even though there may have been no change in the ability of the industry to produce any particular good in its list of products. If as between two periods the only change which takes place in an industry is a change in the proportions in which various commodities are produced, the ratio of (the constant dollar value of) output to the input of man-hours will be changed. If the shift in product composition results only in using the same input of man-hours to produce a larger proportion of goods with a relatively high value of output in constant dollars, then productivity in that industry must be shown to have increased. Such a shift in product composition would ordinarily also involve a change in the composition of the labour hours employed. Similarly, if one is considering labour productivity in the industrial sector of the economy as a whole, shifts in output and employment among the constituent industries will raise productivity if there is a shift of activity to industries which have a higher value of output per man-hour.

There are other technical matters to be taken into account in interpreting the statistics of output per man-hour, but this is not the place to discuss them.* We turn now to the principal broad considerations that underlie our forecasts of productivity. We shall refer specifically to the productivity of labour in the agricultural and business sectors of the economy.

Considerations Underlying Our Forecasts of Productivity

The ratio of output to labour input is like a wide lens directing into the picture the multifarious features of the economic scene. The range of influences on the productivity of labour is enormous; it is a summary statistic *par excellence*. This fact explains the difficulty of the concept but it also explains its usefulness. It is necessary to bring views of diverse aspects of economic life into focus. The concept of productivity helps us to do this and that is why we have found it useful. We wish to discuss briefly now the main views of our prospects which are focussed in our forecast of the productivity of labour.

We have given prominent place to skills and attitudes of workers as important determinants of labour productivity. We do not believe that we have reached the limit to the improvement in the general level of education of the population and the members of the labour force. Indeed, in making our forecasts of the size of the labour force we made allowance for a lengthening of the average period of schooling. We are aware, as we indicate later in this report, that Canada could use more technically trained men and women and that we could perhaps use more effectively such of these persons as are now in the labour force. We believe that the challenge to our educational system at each of its various levels will evoke a response that will be reflected in the rate of increase of labour productivity.

The influences that play upon men's attitudes to their work are devious and complicated. We are not rash enough to think we can judge these matters definitively or that we can forecast their course confidently. We are, however, hopeful that the maturing of labour-management relations will contribute to the growth of productivity. When we look back a quarter century or more at the history of these relations in Canada, we are struck by how far they have advanced. Unionism, of course, is not new but it is only in quite recent times that it has taken its place as a major economic institution. It took time for this to happen, for this new institution to win its place in our economic structure. No doubt labour-management relations in Canada still share in the imperfections of an imperfect world. From time to time there are strikes and lockouts. But fortunately negotiation and compromise are by far the more usual methods of settling labour contracts. Sometimes, too, in labour negotiations insufficient regard is paid

* We refer the interested reader to the appendices to Chap. 5 of *Output, Labour and Capital in the Canadian Economy*.

by one or other or both of the parties to the general good or to the interests of Canadians as consumers. But business and labour leaders, on the whole, would seem to show as much sense of public responsibility as any of the other estates of the realm. Short-sighted and anachronistic attitudes and practices persist in some quarters. Ill-timed or heedless introduction of new techniques is one example; the wastefulness of feather-bedding practices is another. But it is fortunate for Canada that our labour leaders generally realize the importance for the common welfare of technological change and rising productivity and that most of our management personnel show concern over the human implications of business decisions. The cardinal fact, it seems to us, about recent progress in labour-management relations is that the main principles of unionism, of collective bargaining and negotiation, have by now been almost universally accepted. We hope that in the years ahead these relations will be characterized by an even greater measure of mutual respect and public responsibility.

We have emphasized the contribution that a rich endowment of natural resources makes to a high level of productivity. Changing technology and patterns of demand alter the degree of prominence of various resources. We cannot forecast the revolutionary changes in resource requirements of the future, although undoubtedly there will be some. But we do know that Canada possesses in abundance an array of resources that are now in great demand and that seem likely to remain so. We are optimistic, as has been indicated in several previous chapters, that exploration in the field and in the laboratory will reveal new supplies of basic materials and new uses for them. Levels of productivity in Canada are now highest in the natural resource industries and in the primary manufacturing industries closely allied with them. We look for a very rapid rate of increase in the level of productivity in most of these industries, which when combined with their growing relative importance will contribute markedly to an increase in output per man-hour in the business sector as a whole.

The tools and equipment men work with and the techniques they employ in using them are as important in maintaining and raising the level of output per man-hour as the natural resources to which they are applied. The amount of industrial capital per worker has shown a secular rise though this rise has not been continuous; a series of annual figures reflects changes in the degree of unemployment as well as changes in the stock of capital. From 1949 to 1955, however, industrial capital per worker has increased, we estimate, by about one-third. We have mentioned earlier our surmise that the recent capital boom indicated by this figure has not yet had its full impact on labour productivity. It is not likely that the very intensive rate of capital formation of recent years will be maintained in every year in the next quarter century. The accumulation of capital does not proceed in that way; rather, periods of accumulation tend to be follow-

ed by periods when the newly acquired equipment and structures are absorbed and brought to full use. There will no doubt be waves in the rate of capital formation in the future. Nevertheless, it is our judgment that capital per worker in Canada will be very much higher a generation from now than it is today and that this accumulation will induce a continuing rise in productivity.

Not only will the quantity of industrial capital increase, however; its composition will change in response to the demands of a developing technology. The very growth of the economy with its attendant increase in opportunities for large-scale production will alter the equipment required and the techniques used, and as we have remarked in the chapter on secondary industry, these developments will contribute to the rise in productivity.

"Automation" in industry will unquestionably bring changes in equipment and technique that will improve productivity. It is a popular conception — and not necessarily an incorrect one — that nothing new is implied in the term "automation". If one views the matter broadly, automation merely denotes the current or latest stages in the now lengthy historical record of the development and evolution of mechanization. No examination of this record will disclose a point where mechanization ended and automation began.

Yet automation deserves a more distinctive meaning than this. If the timing of its origin is in doubt, we are nevertheless aware that it represents something new. The study *Probable Effects of Increasing Mechanization in Industry*, prepared for us by the Canadian Congress of Labour, quoted several writers who have identified its new qualities. One speaks of its "essential characteristic" being "the integration of machines with one another" — the notion, therefore, of an entire process, rather than merely an operation or series of separate operations being performed mechanically. Another speaks of "automatic feedback control", and this too is commonly a distinguishing feature of automation, in which mechanisms are used to dictate and control the operations of other machines or mechanisms.

These opinions on the meaning of automation produce opposing views on its implications. Those who say there is nothing new but the name itself are reassuring; automation is a part of industrial evolution and there is nothing in the history of that evolution to justify apprehension for the future. Conversely, those opinions which rest upon automation's new qualities see in it the potential for revolutionary change, holding out the promise of great strides in the raising of our productivity levels but harbouring the threat of serious adjustment problems. Since future productivity trends are an important determinant in the preparation of our forecasts this apparent conflict needs further comment.

Examples can readily be cited to show the spectacular accomplishments of automation. It has made new products possible: for example, in modern oil refining techniques or the production of polyethelene. The use of computers by the Department of National Health and Welfare makes possible the preparation, signing and checking of some three million monthly Family Allowance cheques in the equivalent of less than 300 man-days where, by old methods, 16,000 man-days would be required. In addition to their labour-saving aspect, the use of computers can bring important by-products: the speed with which data can be processed and the detail in which they can be organized and analyzed — these are invaluable aids to business operation and planning.

But important as the achievements of automation are, both in fact and in portent, they need to be given perspective alongside its limitations. To date at least, automated techniques are best suited to continuous flow processes, as in the handling of liquids, gases or electrical energy, or to large-volume production of standardized items, such as the manufacture of automotive engines or printed electrical circuits. These are likely to be large-scale enterprises, able to employ the mechanisms for long periods at high rates of capacity and thus able to justify heavy capital outlays. Less suited to the new techniques are processes that involve periodic model or styling changes as in the production of automotive bodies or in the garment industries. And while we are hesitant to suggest limits to automation, particularly over the longer term, there are areas where progress will likely be slow or negligible. Forestry, fishing, construction, transportation, many of the personal services and most of the professional services are cases in point. Here in Canada, our relatively small market may be a limiting factor insofar as this results in smaller-scale production units, though here the problems diminish with our growth. Moreover, where our plants are large but where production of a given line must be in short runs, the impediments to automatic control are receding with the development of "job-shop" automation wherein changing instructions may be fed to machines by means of servo-mechanisms, previously coded tapes or cards or contour-following devices. Finally, our rate of progress in this field may be retarded for lack of trained personnel. We have already discussed the up-grading of skills which will be necessary to meet the future requirements of our economy as it grows in scale and technical complexity. Nowhere is the need more apparent than in the field of automation.

In all, we expect these various factors to limit and retard automation. Thus we do not look for a sharp break from the development trends which innovations have given us in the past. But this view relates to the aggregates: the effects of automation on our national product, on over-all productivity and total employment will be gradual. It is at the level of the individual worker, firm or industry that automation has already begun

and will continue to transform and revolutionize existing practices. It is here that the human problems of displacement and dislocation arise.

They must be recognized. A general raising of living standards is a sound objective but it carries with it social responsibilities to minimize and alleviate the costs that will inevitably fall on some. Governments share part of this responsibility: the displaced worker has a vastly greater chance of obtaining employment in a healthy, growing economy than in a faltering one and government policies must be directed toward this end. Management has a share in this responsibility: typically, after the decision to introduce automation, considerable periods of time are required to investigate, plan, design and install the new equipment. There should be a counterpart plan for the employees who will be affected — programmes for retraining, either for the new skills that will be required or for alternative employment in the organization. Unions, too, have a responsibility: to preserve the requisite conditions of flexibility, to assist and co-operate in the retraining programmes.

What emerges from this brief discussion, then, is that the probable effects of automation lie somewhere between the conflicting evolutionary and revolutionary viewpoints mentioned earlier. Where automation is adopted, its impact will be quite sharp but problems relating to the structure and type of many industries, to cost considerations, to the size of our markets and the availability of the required skilled personnel (which may have cost implications), these problems can be expected to retard its progress. They suggest a gradual rate of adoption of automated techniques.

We recognize that serious adjustment problems will arise and we wish to emphasize that responsibility for these problems must be accepted as a part of the process of automation. In the broad context relating to industrial activity generally, we are inclined to think less in terms of impact and more in terms of the pattern of technical change as we have known it. And in the past, we have needed constant technical change merely to sustain a moderately rising rate of productivity.

Before concluding these remarks on the broad considerations which underlie our forecasts of productivity, let us refer in a fairly precise way to the rates of increase of industrial productivity that have been experienced in North America in recent decades. We have arranged in Table 16.1 estimates of average compound rates of increase in output per man-hour in agriculture and in business in Canada and the United States.

Productivity in agriculture is lower than in the business sector, but its rate of increase has often been considerably higher. Agricultural productivity is subject to the vagaries of the weather; in Canada, in parti-

cular, there is a very close correlation between the level of agricultural labour productivity and the size of the grain crop. Even allowing for the bountiful crops of some of the post-war years, however, the revolutionary changes in agriculture in the last decade — the withdrawal of surplus farm labour to the cities and towns, the mechanization of the farm, the adoption of new techniques of raising crops and rearing livestock — all of these are reflected in the extraordinarily high rates of increase in farm productivity both in Canada and in the United States since the end of the War, with the rate in Canada being substantially higher than that attained in the United States.

Table 16.1

**RATES OF INCREASE IN PRODUCTIVITY
CANADA AND THE UNITED STATES**
(per cent per annum)

Periods	Agricultural sector		Business sector	
	Canada	U.S.	Canada	U.S.
1910-55.....	—	1.95	—	2.11
1926-47.....	0.60	2.14	1.71	1.55
1926-55.....	2.24	2.92	1.91	3.00
1947-49.....	2.75	7.40	1.78	3.65
1947-53.....	8.82	4.57	2.35	3.32
1949-53.....	11.23	3.23	2.64	3.17
1949-55.....	7.54	4.05	2.68	2.96
1951-53.....	3.78	3.92	3.24	2.62
1951-55.....	2.85	4.84	3.01	2.56
1953-55.....	0.51	5.78	2.76	2.50

The figures in the table are the average compound rates of increase implied by the productivity figures pertaining to the terminal years shown in the stub.

The Canadian figures are based on our estimates of Gross Domestic Product at factor cost (in 1949 dollars) per man-hour. These estimates are given in Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy*, 1957, a study for the Commission, Chap. 5, Table 5.6, p. 212 and Chap. 5, Appendix F, p. 398.

The United States figures are based on estimates of Gross National Product at market prices (in 1947 dollars) per man-hour. These estimates may be found in *Productivity, Prices and Income*, materials prepared for the Joint Economic Committee, 85th Congress, 1st Session, 1957, Table 5, p. 91. They are revisions of comparable figures quoted in Chap. 5 of *Output, Labour and Capital in the Canadian Economy*.

In the business sector as in the agricultural, depression and war held back gains in productivity. On the whole, therefore, the rates of increase of productivity have been higher in the post-war years than they were on the average over the years preceding 1946, going back as far as our data will allow. In the United States the rate of increase of labour productivity in the business sector from the period 1909-11 to the period 1946-48 was 1.88 per cent compounded annually, whereas from 1946-48 to 1954-56 it was about 2.75 per cent. In Canada from 1926-28 to 1946-48 the rate of increase was 1.7 per cent whereas from 1946-48 to 1953-55 it was 2.3 per cent. As may be seen from the table there were some post-

war years in which, in both countries, the rates of increase were very much in excess of 3 per cent.

These then are the broad considerations we have taken into account in making our forecasts of productivity. We shall state our forecasts now and then proceed to describe the forecasts of output which they, along with forecasts of the labour force and hours of work, imply.

As mentioned already in the chapter on agriculture, we have forecast that output per man-hour in agriculture will increase at an average rate of 3 per cent compounded annually until 1970 and for the next ten years until 1980 at an average rate of 2.5 per cent compounded annually. Since it seems that the mechanical revolution that has been taking place in Canadian farming is not yet complete, we are assuming that productivity in agriculture will continue to increase over the next 15 years at a high rate, although not so remarkably as has been the case during the past decade. There will of course be other technological advances made in agriculture, and for that reason we are also assuming a substantial rise in productivity during the last ten years of the period under consideration. But in our opinion the rate of increase will be somewhat lower partly because mechanization will already have advanced very far and partly because the production of meat, which will become relatively more important towards the end of the forecast period, cannot be mechanized to the same extent as grain growing.

For the business sector of the economy we predict that output per man-hour will increase at a rate somewhere between 2.5 per cent and 3.25 per cent compounded annually. These guesses are optimistic and may prove to be unjustifiably so. Our optimism is rooted, however, in our reflections on past and prospective developments relating to the skills and attitudes of workers, discoveries of resources, capital formation and the invention and adoption of new techniques of production. We have chosen to tie our assumptions about future productivity gains to the figures of the post-war period partly because it seemed natural to expect that future experience (under the assumptions of no major wars and no major depressions) would probably approximate more closely the experience of the recent past than that of earlier periods and partly because recent statistics are more reliable.

The Forecasts of Output

Having presented our forecasts of the size of the labour force in an earlier chapter, and of labour productivity in this, we are now in a position to describe our predictions of total output. The actual arithmetical operations of combining the projections of the number of workers with those of productivity are simple enough. Those members of the labour force who are actually at work, working the average number of

hours per week or per year will each produce output at the rate indicated by the projected figure of productivity. The formula then is: workers times average hours worked by a man in a year, times output per man-hour. The output figure resulting from this computation is, technically, Gross Domestic Product at factor cost, and to it certain adjustments have to be made to convert to the more familiar figure Gross National Product at market prices.

We have made forecasts of Gross Domestic Product separately for three sectors of the economy and we shall describe these first. The sectors are the ones referred to earlier in this chapter: government and community services (embracing activities in the fields of health, education and community service as well as the administration and defence functions of government); agriculture; and business (including government business enterprises and private non-agricultural concerns).

We have sought to forecast the potential level of output in each of several years between now and 1980. In other words, we have considered what the level of output might be in a particular year if the economy were "fully employed" in that year. We recognize that in every year we may expect to experience a seasonal variation in employment; and, accordingly, we have defined our criterion of full employment in terms of the proportion of the labour force employed on the average through the year. Somewhat arbitrarily we have decided to designate the labour force as fully employed if on the average through the year at least 97 per cent of the members have jobs, and we have calculated what the yearly levels of output may be if exactly this annual average percentage of the labour force were employed. It so happens that over the years 1951 through 1955 the average level of unemployment was approximately 3 per cent of the labour force.

Hours of work, both in agriculture and in the business sector of the economy, have been declining and we expect these trends to continue. Average hours of work per week per man in agriculture are predicted to fall from 55.3 in 1955 to 43.75 in 1980 and, in business, to fall from 41.3 in 1955 to 34.3 in 1980. The farmer's working hours have to be adapted to nature's routines and cycles. Cows have to be milked on Sunday as well as on Monday. In the face of this it is not easy to shorten the farmer's working hours, but great gains in this respect have been made and we feel more will be made. In the business world there are already substantial numbers of persons who work less than 40 hours a week and who enjoy annual holidays. In our calculations we have allowed for a decline in the number of hours worked per day and in the number of days worked per week. We have allowed for an extension of the average annual holiday period, and we have recognized that there may be an increase in the amount of part-time work associated with the employment of women and older workers generally. On the other hand we have had to

allow for a normal amount of overtime and for the fact that the practice of holding two jobs is spreading. It may help to put our forecast in focus if we remark that if a man works 49 weeks in the year, five days each working week, and eight hours less two 20-minute coffee breaks each day, he will work the number of hours a year we have forecast for 1980.

The labour force employed in agriculture we expect will continue to decline as it has done in the post-war period; but because it has already declined very substantially, and because there will be a relative switch in agricultural pursuits from grain growing to the more labour-intensive livestock farming, we anticipate that the rate of decline will be retarded. We think that employment in the government and community services sector may double in the next twenty-five years with employment in the field of health alone increasing somewhat less than threefold. If our forecasts prove approximately correct, then employment in the business sector will also nearly double.

The relations of employment and productivity to output — Gross Domestic Product at factor cost — in each sector according to our forecasts are exhibited in Table 16.2. It will be noted that in spite of the decline in employment and hours of work in agriculture we expect output in this sector to rise perhaps 25 per cent by 1980. In the government and

Table 16.2

THE FORECASTS OF GROSS DOMESTIC PRODUCT BY SECTORS

(based on the assumption of net immigration of 75,000 per annum)

	1955	1965	1970	1975	1980
Agriculture					
Employment	100	93	91	90.6	90
Average weekly hours of work per man	100	88	85	82	79
Gross Domestic Product per man-hour	100	118	137	155	175
Gross Domestic Product	100	97	106	115	124
Government and community services					
Employment	100	137	156	176	199
Gross Domestic Product per man-hour	100	103	103	103	103
Gross Domestic Product	100	142	161	182	206
Business					
Employment	100	132	152	173	194
Average weekly hours of work per man	100	91	89	86	83
Gross Domestic Product per man-hour (lower forecast)	100	128	145	164	185
Gross Domestic Product per man-hour (higher forecast)	100	138	162	190	222
Gross Domestic Product (lower forecast)	100	154	195	242	298
Gross Domestic Product (higher forecast)	100	168	218	280	358

Index numbers are based on 1955.

For each sector and for each year, the index number of Gross Domestic Product is, apart from rounding, the result of multiplying the indexes of employment, productivity, and where applicable average weekly hours of work.

In this table indexes of Gross Domestic Product are based on figures of Gross Domestic Product measured at factor cost in 1949 dollars.

SOURCE: Adapted from Wm. C. Hood and Anthony Scott, *Output Labour and Capital in the Canadian Economy*, 1957, a study for the Commission, Chap. 5, Appendix A, p. 348A.

community services sector, the doubling of employment will be matched by a doubling of output. (We have explained earlier the considerations underlying the lack of change in Gross Domestic Product per man in this sector; the trivial difference that is shown is purely technical and of no concern to us here.) In the business sector, the decline in hours will be more than offset by the increase in employment and the increase in productivity. Gross Domestic Product at factor cost in this sector will rise in the order of 3 to 3½ times, in our view.

Our forecasts of Gross National Product at market prices are shown in Table 16.3.

Table 16.3

FORECASTS OF THE GROSS NATIONAL PRODUCT
(billions of constant 1955 dollars)

	Assumed net immigration		
	50,000 per annum	75,000 per annum	100,000 per annum
Productivity factor 2½% ^a			
1965.....	38.0	38.7	39.5
1970.....	46.7	48.0	49.3
1975.....	56.3	58.2	60.2
1980.....	67.7	70.3	73.0
Productivity factor 3¼% ^a			
1965.....	40.2	41.1	41.8
1970.....	50.9	52.4	53.9
1975.....	63.5	65.7	67.9
1980.....	78.9	82.0	85.2
Average of the above			
1965.....	39.1	39.9	40.7
1970.....	48.8	50.2	51.6
1975.....	59.9	62.0	64.0
1980.....	73.3	76.1	79.1

NOTE: In 1955, the Gross National Product was \$26.8 billion.

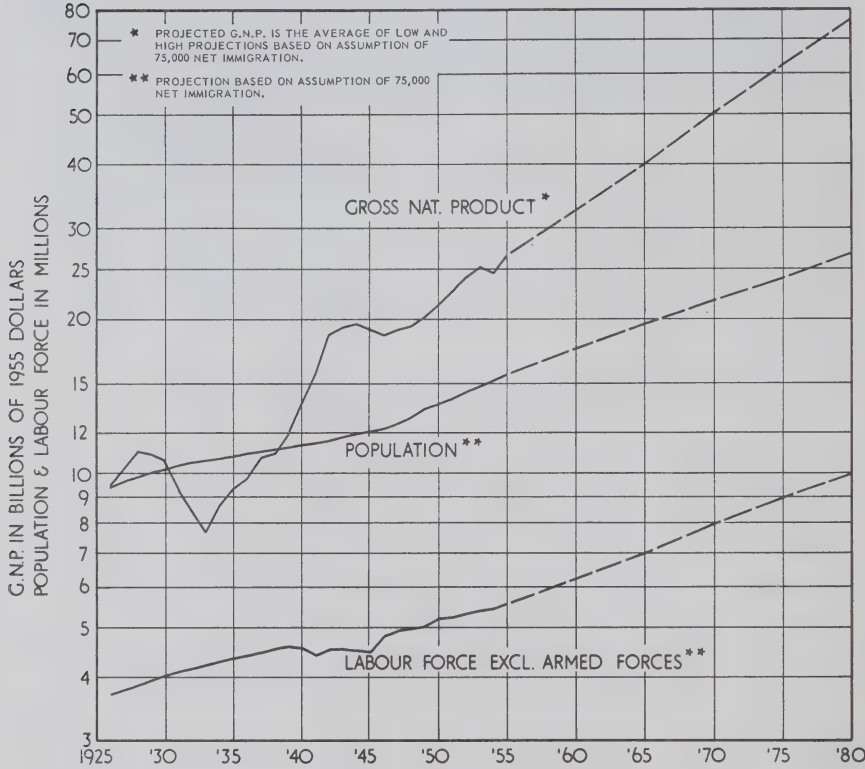
a. Assumed rate of productivity increase per annum for the business sector.

SOURCE: Adapted from Wm. C. Hood and Anthony Scott, *Output Labour and Capital in the Canadian Economy*, 1957, a study for the Commission, Chap. 5, Appendix A, p. 348A.

We need not go into detail here concerning the adjustments necessary to convert Gross Domestic Product at factor cost to Gross National Product at market prices. The interested reader may consult Chapter 5 of *Output, Labour and Capital in the Canadian Economy*. The adjustments require the addition of an estimate of indirect taxes less certain subsidies in the economy, the addition of interest and dividends received from abroad and the subtraction of interest and dividends paid to foreigners.

If net immigration averages 75,000 per annum and if the rate of productivity increase in the private business sector of the economy hews to the midpoint of the range we have chosen, the Gross National Product in 1980 will amount to approximately \$76 billion in terms of 1955 dollars. If, however, net immigration on the average runs at only 50,000 per

Chart 16.1
GROSS NATIONAL PRODUCT — POPULATION AND LABOUR FORCE
SEMI-LOGARITHMIC SCALE
1926-1980



annum, and if the rate of productivity increase in the business sector hugs the lower edge of the range, Gross National Product in 1980 will amount to \$68 billion. If, on the other hand, net immigration runs on the average at 100,000 per annum, and if the rate of productivity increase is as high as 3.25 per cent per annum in the business sector of the economy, Gross National Product in constant dollar terms will reach \$85 billion by 1980. There is thus a margin of error of somewhat over 10 per cent on either side of our median forecast. In general, it seems possible that Gross National Product may triple in real terms over the next quarter century. The chart on the previous page shows the anticipated growth of the Gross National Product together with that of the population and the labour force.

Table 16.4 indicates the estimated growth of per capita Gross National Product from 1955 to 1980. To deduce from these estimates what the growth is likely to be in per capita personal disposable income would necessitate making a number of assumptions about the tax structure which might or might not prove accurate. The estimates in this table, however, are consistent with the conclusion reached in the study made for us on *Consumption Expenditures in Canada* that by 1980 the average Canadian, after paying income tax, will have about two-thirds again as much net income for his own use as he had in 1955.

Table 16.4

**FORECASTS OF PER CAPITA GROSS NATIONAL PRODUCT,
ASSUMED NET IMMIGRATION — 75,000 PER ANNUM
(average between the high and low projections, 1955 dollars)**

	Per capita Gross National Product	
	Dollars	Index (1955=100)
1955.....	1,714	100
1965.....	2,044	119
1970.....	2,320	135
1975.....	2,584	151
1980.....	2,859	167

SOURCE: Adapted from Wm. C. Hood and Anthony Scott, *Output Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 4, Appendix A, Table 4A.3, pp. 341-343 and Chap. 5, Appendix A p. 348.

We should like in conclusion to offer some final remarks on the interpretation of our forecast. We have tried to forecast the *potential* levels of output that may be achieved if the economy is fully employed. Full employment has been defined as a condition in which on the average through a year at least 97 per cent of the members of the labour force have jobs. Perhaps our objective can best be described as follows. Picture the graph of Canadian real output as it may actually be realized over the next twenty-five years. This graph will be generally rising but it will also show moderate upswings and downswings in economic activity. We assume

that it will not show major downswings such as that following 1929 or be affected by the outbreak of global war. Picture further now, a line across this chart through the levels of yearly output produced when the annual average percentage of the labour force employed is 97 per cent. Our forecast of real output is to be interpreted as a forecast of the value of output for the years 1965, 1970, 1975 and 1980 as measured along this line. We do not attempt to forecast whether the year 1965 for example will be a year of boom or recession. We only attempt to forecast what might be the level of output in that year if 97 per cent of the labour force is employed on the average. We do, indeed, present our forecasts as ranges of alternatives; but each alternative pertains to a fully employed economy. The range reflects our uncertainty as to what the capacity of the fully employed economy will be.

While we have concentrated on the general trend of potential output over the next twenty-five years, we are under no illusions that development will occur precisely along this line of trend through our projections. In some years the average proportion of the labour force employed will be greater than 97 per cent; in some years it may be significantly less. Nor will productivity increases occur at a constant annual rate. In short, we believe real output will swing around this trend of potential output, in some years rising above it and in other years falling below it. But there is reason for confidence that these swings will not be wide ones.

THE CHANGING STRUCTURE OF THE CANADIAN ECONOMY

WHAT IS THE prospective structure of the Canadian economy? How may future changes differ from those which took place during the first and second quarters of this century? In earlier chapters of our report many of the parts of Canadian economic life have already been examined, each part considered somewhat in isolation from others and from the whole. In Chapter 16, we brought these pieces together into forecasts of the prospective "size" of the Canadian economy and the over-all growth in productivity. Now we summarize and collate our views on the "shape" or "form" of the economy. First we review some of the general influences which have changed the structure in the past, and consider the imprint of such broad forces on the future character of Canadian economic activity. Then we deal specifically with trends in the distribution of expenditure, of Canadian output and of employment among various industries.

The changing structure of an economy is of great interest because it determines many of a country's economic problems and imposes limitations on policies aimed at their solution. Canadians have achieved a high standard of living partly because of their good opportunities and effort, but this level of economic attainment has involved a continuous process of adapting Canadian economic life to changing circumstances provided by world markets and the available Canadian resources. Such a process of adaptation requires a shifting of the location and occupations of people, and a reshaping of the employment of a nation's stock of real capital, with all the economic and social problems involved. Or to take a more specific example, in the past comparatively large proportions of Canadian manpower and resources were devoted to agricultural production for export to British and European markets; thus variations in nature's bounty and in world market conditions in agricultural products imposed substantial instabilities on the incomes of many Canadians. The smaller role which such activities now play in Canada's over-all production means that these particular sources of instability are less important today than they once were, but the new shape of the economy poses other problems, such as massive requirements for social capital and for large investments to exploit the newer resource industries.

Changes in the size and in the structure of an economy are obviously related, with the precise relationships varying from country to country. The central problems of long-range economic forecasting are to relate the parts to each other and to the whole. In the forecasting work carried out for the Commission, predictions for the total output and for various kinds of expenditure, output and employment were made somewhat separately and simultaneously. Efforts were made at reconciliation but, of necessity, these could not all be conclusive. However, an important feature of the work was that those concerned with the over-all forecasts took account of the changing structure of the economy, while the forecasts for particular sectors reflect — and are reflected in — the over-all forecasts, and have been related to one another. Thus, the distribution of expenditure, output and employment on which we report in this chapter has been related, although perhaps somewhat imperfectly, to the views on the aggregate growth of the economy on which we have reported in Chapter 16.

The Main Forces Changing the Structure of the Canadian Economy

While the Canadian economy today has much in common with that of three decades ago, the structure has been pushed and pulled by world and Canadian developments during the past thirty years and thus has a somewhat different face now than in the past. The main forces bringing about the structural changes have been the alterations in relative economic size of various industrial countries in the world, the growth of governmental activities in Canada, the increased size of the Canadian economy itself, the widespread appetite throughout the world for forestry and mineral materials, the Great Depression and the Second World War. It is widely recognized that the over-all economic growth of the United States and the Soviet Union has been greater than that of the United Kingdom and the countries of Western Europe during the last 30 years and that Canada has attained a distinctly higher rank as a world power. Unsettled international political arrangements imply larger defence budgets than were common in the 1920's and Canada's more important status places on us obligations for military preparedness far beyond anything which we had previously experienced under peacetime conditions. Among the proportionately most enlarged industries in Canada are some concerned greatly with the production of defence equipment such as aircraft and electronics. The relatively more rapid growth of the United States has meant a stronger pull over the years toward a North American orientation of Canada's trade and production arrangements but one which has of course been shaped in various ways by public policy.

Quite apart from increased commitments for defence, there has been a more than proportionate growth in the size of governmental operations in Canada with governments attempting more active policies aimed at the "economic and social welfare" of the community. This trend is found in

all industrial countries. By providing a certain modicum of security of income to individuals and regions such governmental activities have influenced the patterns of expenditure by Canadians, encouraging longer-term commitments such as the purchase of housing and durable consumer goods, and encouraging a broader participation in the market for something more than a minimum quality of food, housing and clothing.

The scope of Canadian economic life has been broadened somewhat over the past three decades. While Canada is still greatly dependent on export markets for a small number of staple commodities, it is slightly less dependent on exports than it was three decades ago; also it is much further from being "a one commodity" country than in the late 1920's. Perhaps the most important of the discoveries has been the post-war development of large petroleum resources in Western Canada, a change which has already overcome a large part of the energy deficiency of the Canadian economy. The increase in the economic size of Canada along with the rapid growth of production of some of the newer export staples have provided some additional competitive strength to manufacturing industries in Canada, so that the country has become more of an industrial and urban nation than it was three decades ago.

The Great Depression of the 1930's and the Second World War continued long after they were over to influence Canada's economic experience. From 1930 to 1945 the accumulation of many forms of social and industrial capital equipment was rather severely restrained in Canada (as in the United States), so that, on a per capita basis, we probably ended the Second World War with a much smaller stock of many forms of capital equipment than we had in the late 1920's; that is, with deficiencies in our stock of houses, roads, hospitals, schools, factories and so on. The same situation applied respecting durable consumer goods. The most distinctive feature of our experience since the end of the War has been the extremely large proportion of a large and expanding national output which we have devoted to the accumulation of capital equipment and durable consumer goods; we believe that a part of this expenditure has been due to the processes of catching up on the deficiencies in our stock of capital. The Great Depression and the War had another most important influence on the Canadian economy; through abnormally low levels of imports, limited investment programmes, special intergovernmental financial arrangements of the War and post-war years and inflation, the relative burden of Canada's external indebtedness was greatly reduced. Despite all of the real costs of the Great Depression and of the Second World War, and the continued burdens of defence, Canadians have had distinctly higher levels of material comfort as well as greater leisure during the first half of the 1950's than was experienced during the late 1920's.

What of the future? What general influences are expected to shape the economy? Are the trends likely to be somewhat different than in the past?

We have assumed that social, political and economic organization in Canada will not be fundamentally different from what they now are, for to assume otherwise is to fly in the face of our history and to launch into a topological nightmare in which one has no guideposts. We have also assumed that there will be no global war. Accordingly, and partly reflecting recent experience in the world, it appears likely that the over-all economic growth in the United States will be greater than in the United Kingdom and Western Europe, but the widening of the gap in economic power between these two industrial areas will be much less in the future than it was during the past 30 years. We have earlier indicated a comparatively rapid growth in the economic size of Canada and thus a belief in some further elevation of Canada in international economic stature, but Canada's place in the constellation of world power will not be essentially different from what it now is. We project the defence budget as a decreasing fraction of Canada's Gross National Product. Also, the shift of Canadian external trade toward a North American orientation is expected to be slower than it was during the past three decades.

The presently known mineral and forest resources and the potentialities of further additions to knowledge of our mineral wealth, together with the attractive market opportunities for mineral and forest products, imply a further rapid growth in the resource industries and a corresponding stimulus to over-all Canadian economic growth. However, Canadians must guard against overrating the strength of their position in forest and mineral products; for most of such commodities, there are many closely competitive sources in other parts of the world. The already high degree of exploitation of the cheapest hydro-electric power facilities in Canada and the smaller attraction of processing of some of the new mineral products (petroleum and iron ore) close to the sources of the minerals and hydro-power imply a somewhat less rapid growth in the primary manufacturing activities in Canada than has taken place in the past. Our expectation of rapid growth in the size of the Canadian economy, if realized, ought to provide opportunities for the continued improvement in the competitive position of many, but not all, secondary manufacturing industries, and some substitution of domestic for imported products. The unfavourable export market outlook for Canada's agricultural products suggests a proportionate decline in agricultural output. Though the backlogs of requirements of social and industrial capital are in the process of being overcome, a high rate of economic growth will require and encourage high average levels of investment expenditure; however, the growth in construction activity will not be comparable to that in national output, unless there is a demand in Canada for significantly higher standards of housing and social capital facilities.

Canadians appear likely to become, even more than now, a rich people, with more leisure, living in a predominantly urban society. The

riches and leisure mean rapid growth in demands for recreational and hobby equipment, for travel and education, for better qualities of food and clothing, for more household equipment. The contrast of these riches and the poverty of much of the world will probably place increasing responsibilities on us for aid to the less fortunate.

***The Distribution of National Expenditure and
the Structure of Canada's Foreign Trade***

The structure of the Canadian economy has depended and will continue to depend to a great extent on the pattern of expenditure followed by Canadian businesses and individuals. For example, a shift in consumer expenditure from housing to automobiles and to home appliances implies a more rapid growth for the Canadian automobile and home appliance industries than for the construction of residential housing. A shift in world demand from foods to industrial materials will be reflected in a more rapid growth in the Canadian resource industries than in Canadian agriculture. Thus we feel it appropriate to begin the more detailed summary of the past and prospective shape of the Canadian economy with the distribution of expenditure on final goods and services coming available in Canada. This will be done by considering the main categories of the Gross National Expenditure, the total of which is equal by definition to the Gross National Product; the latter was forecast in total in the previous chapter.

Glancing back we see that the biggest changes in the distribution of Canada's Gross National Expenditure among the main components has been a more than proportionate growth in governmental demand and less than proportionate growth in personal or consumer demand for goods and services. See Table 17.1 and Chart 17.I. From the period 1927 to 1929 to the period 1953 to 1955 the governmental share of the Gross National Expenditure increased from 10.3 per cent to 17.9 per cent, while personal expenditure declined from 72.0 per cent to 63.3 per cent. Perhaps more significant, however, we find that both the proportion of Canada's output which was exported and the proportion of the goods and services used in Canada which was imported have declined, but in roughly the same degree. Thus, the net annual current import surplus in Canada's national accounts was proportionately about the same in the late 1920's and between 1953 and 1955. The record on the share of the Gross National Expenditure devoted to investment is somewhat mixed partly because the fraction has varied widely over time and partly because the prices of investment goods have behaved somewhat differently from the general price level. In current dollars the investment share in national expenditure was somewhat larger between 1953 and 1955 than it was between 1927 and 1929; in constant dollars there was apparently a slight decline in the share. However, the proportionate change in investment appears to be much smaller than in governmental or personal expenditure and smaller than the proportionate decline in exports and imports.

Table 17.1

THE DIVISION OF GROSS NATIONAL EXPENDITURE
(averages for selected years 1926-55; forecasts for 1980)

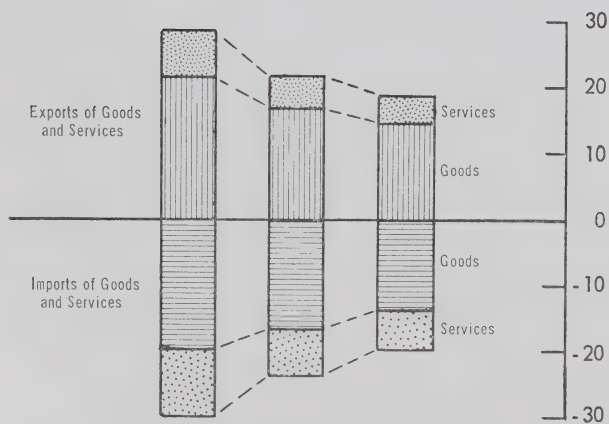
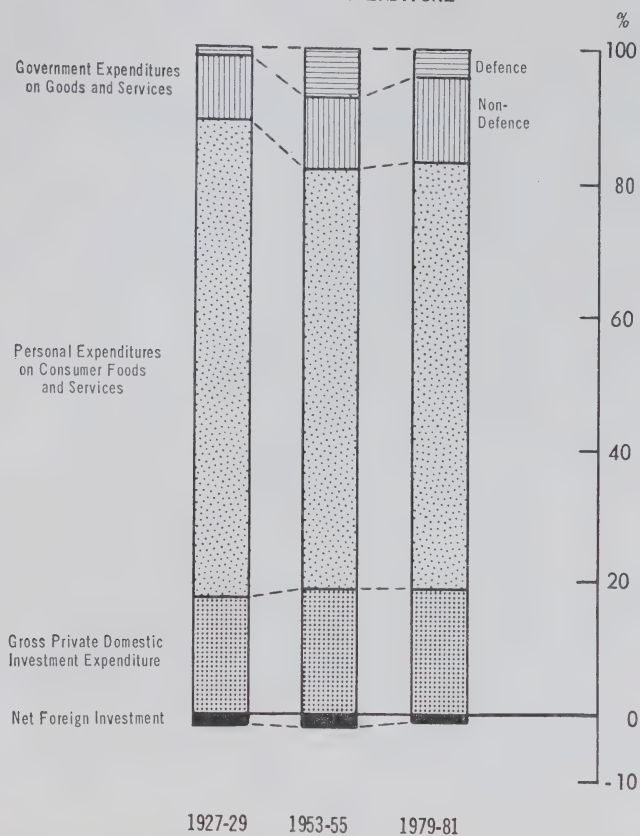
	Billions of current dollars					Billions of 1955 dollars		
						1979-81		
	1927-29	1937-39	1947-49	1950-52	1953-55	Low	Middle	High
Personal expenditure on consumer goods and services.....	4.30	3.83	10.08	13.22	15.94	45.1	49.1	52.8
Government expenditure on goods and services.....	.61	.71	1.83	3.27	4.51	11.9	12.7	13.7
Private fixed domestic investment.....	1.01	.62	2.59	3.76	4.92	12.8	14.2	15.7
Investment in inventories and error of estimate.....	.16	.14	.57	.95	.32	1.0	1.2	1.3
Exports less imports.....	— .12	.13	.20	— .23	.51	— .5	— 1.0	— 1.5
Total.....	5.97	5.43	15.28	20.97	25.18	70.3	76.2	82.0
Government current non-defence expenditure.....	.43	.49	1.06	1.32	1.64	6.3	6.8	7.4
Government non-defence investment expenditure.....	.16	.17	.50	.80	1.07	2.7	2.9	3.1
Government defence expenditure.....	.02	.05	.27	1.15	1.80	2.9	3.0	3.2
New residential construction.....	.23	.17	.63	.79	1.23	2.3	2.6	2.9
New non-residential construction.....	.40	.18	.77	1.28	1.71	3.5	4.0	4.6
New machinery and equipment.....	.38	.27	1.19	1.69	1.98	7.0	7.6	8.2
Exports of goods and services.....	1.67	1.46	3.90	4.95	5.43	13.1	14.1	15.1
Imports of goods and services.....	1.79	1.33	3.70	5.18	5.95	13.6	15.1	16.6
Per cent								
Personal expenditure on consumer goods and services.....	72.0	70.5	66.0	63.0	63.3	64.2	64.3	64.4
Government expenditure on goods and services.....	10.3	13.1	12.0	15.6	17.9	16.8	16.7	16.7
Private fixed domestic investment.....	17.0	11.4	17.0	17.9	19.5	18.2	18.6	19.2
Investment in inventories and error of estimate.....	2.7	2.5	3.7	4.6	1.3	1.4	1.7	1.6
Exports less imports.....	— 2.0	2.5	1.3	— 1.1	— 2.0	— .7	— 1.3	— 1.8
Government current non-defence expenditure.....	7.2	9.1	7.0	6.3	6.5	8.9	8.9	9.0
Government non-defence investment expenditure.....	2.7	3.1	3.2	3.8	4.3	3.8	3.8	3.8
Government defence expenditure.....	.3	.9	1.8	5.5	7.1	4.1	3.9	3.9
New residential construction.....	3.9	3.2	4.1	3.8	4.9	3.3	3.4	3.5
New non-residential construction.....	6.7	3.2	5.1	6.1	6.8	5.0	5.2	5.6
New machinery and equipment.....	6.4	5.0	7.8	8.1	7.8	10.0	10.0	10.0
Exports of goods and services.....	28.0	27.0	25.5	23.6	21.6	18.6	18.5	18.4
Imports of goods and services.....	30.0	24.5	24.2	24.7	23.6	19.3	19.8	20.2

NOTE: Detail does not always add to total because of rounding.

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 7, Table 7.4, p. 318.

Chart 17.1

VARIOUS CLASSES OF EXPENDITURE AS PERCENT OF GROSS NATIONAL EXPENDITURE



SOURCE: Table 17.1

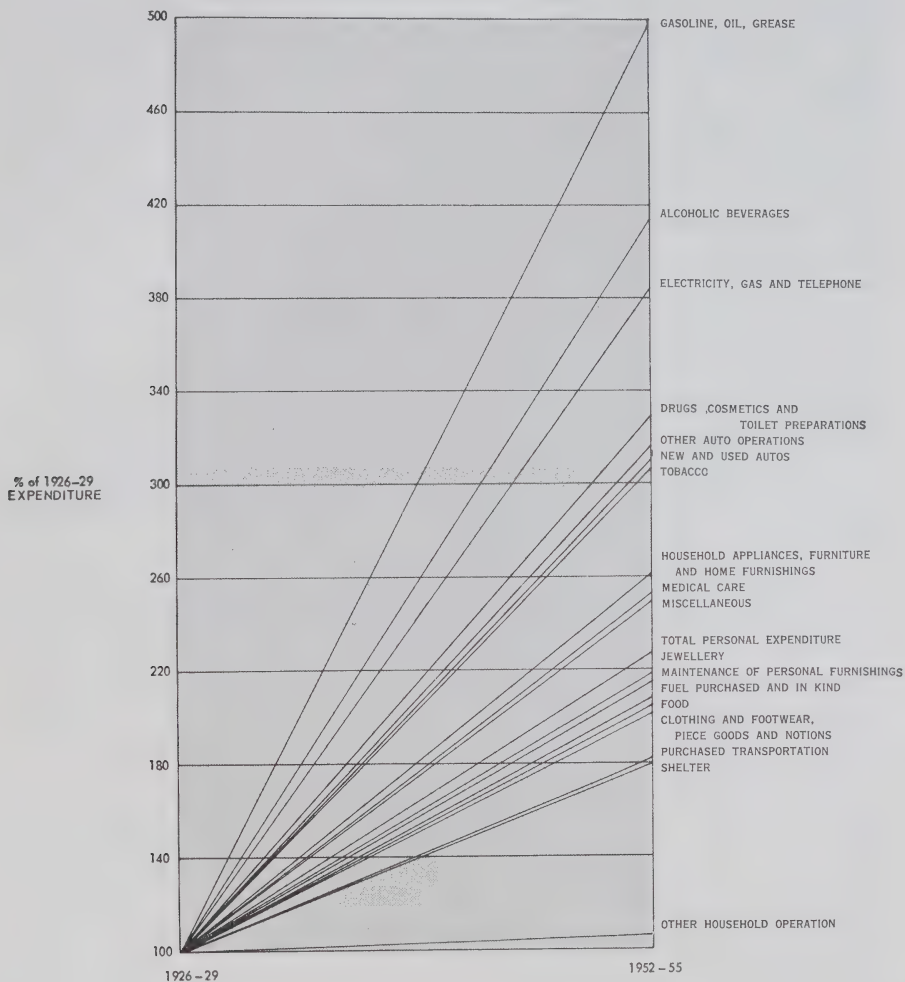
a) *Government and Personal Expenditures*

We will comment briefly on the trends in government and personal expenditure and more fully on investment expenditure and Canada's foreign trade. The comparatively rapid growth in government expenditure on goods and services is due primarily to the enormous increase in expenditure on defence — from about 0.3 per cent of Gross National Expenditure between 1927 and 1929 to 7.1 per cent between 1953 and 1955. The growth in government expenditure on goods and services has been accompanied by increased taxation, which in turn is the main reason for the proportionate decline in consumption expenditures between the late 1920's and recent years. Non-defence investment expenditures by governments account for slightly higher fractions of national output in recent years compared with the late 1920's, but this trend must be partly imputed to the abnormally high investment programme in recent years due to the sudden upsurge of population growth, the exceptionally high urbanization of the population and the backlog of requirements of social capital with which we started the post-war years. Of course, in addition to the increased share of governments in the total expenditure on goods and services, there have been enormous increases in net transfer payments from governments to the public, including such items as interest on the non-productive elements of the national debt, family allowances, old-age pensions, veterans' allowances, and medical programmes. Collectively such net transfers amounted to about 3.8 per cent of the Gross National Expenditure in 1928 and 1929 and to about 8.4 per cent between 1953 and 1955. Under these schemes governments acquire funds from the community (mainly through taxation) and transfer them back to the public, with only a minor and incidental expenditure by governments on goods and services.

Though they represent a smaller fraction of total national expenditures, by any measure personal expenditures on consumer goods and services were absolutely much higher in recent years than they were in the late 1920's. In the study of *Consumption Expenditures in Canada* prepared for us, it is estimated that per capita personal expenditures on final goods and services, corrected for changes in price levels, were roughly 45 per cent higher between 1952 and 1955 than between 1926 and 1929; at the same time the average hours of work by the labour force declined substantially. Within personal expenditure we find some wide differences in the rate of growth of particular categories (see Chart 17.II) higher than average growth having taken place in expenditure on automobiles, alcoholic beverages, automobile operation, household appliances and furniture, tobacco, electric, gas and telephone service, medical services, drugs and cosmetics. The proportion of personal budgets declined for shelter, clothing, food, fuel, purchased transportation services and domestic service. In a rough statistical way these trends suggest changes in the fabric of Canadian life which reflect higher average real incomes,

Chart 17. II

CANADA: INCREASE IN VARIOUS TYPES OF CONSUMPTION EXPENDITURE 1926-29 to 1952-55
(Based on data in constant (1949) dollars)



SOURCE: D. W. Slater, *Consumption Expenditures in Canada*, 1957, a study for the Commission, Chap. 2, p. 23.

greater leisure, urban life, the mobility provided by the private automobile and expensiveness of labour such as for domestic service.

b) *Investment Expenditures*

Because of the central role played by the accumulation of capital goods in the economic growth of a nation we wish to report at slightly greater length on investment expenditure in Canada. The stock of capital may be likened to a lake system, with the productive capacity of a nation dependent on the level and characteristics of the various reservoirs. In the processes of production and with the passage of time capital is consumed or used up; this is commonly identified as depreciation of capital goods. On the other side of our hydraulic analog, a process of addition to the stock of capital takes place, as new houses and factories and roads are built. It is these gross additions to the stock that we call "gross investment expenditures". Canadians have fairly satisfactory data on investment expenditure for many years; they have somewhat less satisfactory estimates of capital consumption or depreciation; but hitherto there has been no systematic study of the stock of capital itself in Canada, that is of its size and composition and age structure and relationships to output. Because we believed that the size and characteristic of the stock would be helpful information for our task as well as of general interest to economic research in Canada, we have had a special study made of this matter; this is set out in Chapter 6 of the study, *Output, Labour and Capital in the Canadian Economy*.

A nation's capital consists of the productive skills of its people, as well as the structures, machines, inventories of raw materials and goods in various stages of manufacture. It is on the predominantly inanimate forms of capital which we focus here, but this should not be taken as a slur on human capital. Indeed, we believe that individual and collective investments by people to develop and exercise their own skills and talents are most important ways in which economic progress and human dignity may be combined. Another type of capital which we put aside at the moment consists of that stock of durable goods owned by households, such items as refrigerators, stoves, automobiles, outboard motors and fishing rods which are the property of private individuals. These instruments comprise an amazingly large proportion of the total stock of productive instruments in economies like ours and trends in personal expenditure suggest that a comparatively rapid accumulation of such items continues to take place. Such goods are partly a way of attaining economic growth but are to a considerable extent a product of and an object of the growth. Instruments and inventories which are used directly or indirectly in the productive processes are much more clearly 'engines of economic progress' than are consumer durables, and it is the former with which our study is mainly concerned.

Even when we put aside capital in the forms of personal skills, consumer durables, inventories and natural resources, we are impressed with the size of the stock of capital required for our economy. See Table 17.2. The study prepared for us indicates that the stock of fixed capital amounted to almost \$78 billion (in 1949 dollars) at the end of 1955, compared with a national output of final goods and services of about \$21.6 billion (in 1949 dollars). Of this stock, about \$41 billion consisted of industrial capital, that is of machinery, equipment and structures used directly in the processes of non-governmental production activity in Canada. In the economic literature on the subject, reference is often made to capital-output ratios; in non-technical language these refer to the dollars' worth of capital of certain kinds used per dollars' worth of output. The study prepared for us indicates that, at the end of 1955, Canadians used \$1.1 worth of machinery and \$1.4 worth of structures per \$1 worth of final industrial output. Another \$21.7 billion of Canada's stock of fixed capital consists of housing, and about \$15.0 billion may be called social capital; the latter refers to the accumulation of roads, schools, government buildings and equipment, experimental farms, and such like. The stock of capital is also extremely large compared with the annual gross additions to the stock. In recent years, Canadians have devoted a large fraction of their annual output to gross investment in fixed capital, almost 24 per cent between 1953 and 1955, yet the gross additions amounted to only about six per cent of the stock of fixed capital which existed at the end of 1955.

Table 17.2

SELECTED ITEMS—STOCK OF CAPITAL, INVESTMENT EXPENDITURES AND CAPITAL—OUTPUT RATIOS

(millions of 1949 dollars)

Item	Gross stock, 1955	Gross expenditures on additions average 1953-55	Gross expenditures on additions in 1953-55 as % of G.N.E.	Capital-output ratio in 1955
	(millions of 1949 dollars)			(1949 \$)
Industrial capital				
Machinery and equipment	17,310	1,623	7.8	1.1
Structures	23,827	1,277	6.8	1.4
Total	41,137			2.7
Housing	21,742	955	4.9	n/a
Social capital				
Machinery and equipment	1,601			
Buildings	7,115			
Roads and other engineering	6,298			
Total	15,014	827	4.3	n/a
Total fixed capital	77,893	4,682	23.8	

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy*, 1957, a study for the Commission, Chap. 6.

Investment in fixed industrial capital in Canada was at a high level in the late 1920's and since the end of the Second World War, though somewhat higher in the more recent than in the earlier period. Also, of this investment, a somewhat larger fraction took the form of machinery and equipment in the later period, and thus a smaller fraction as structures. See Table 17.1. What trends may be imputed to these observations? First, a part of the investment in industrial capital since the end of the Second World War should be viewed as catching up on a backlog, of replenishing the stock of capital. During the Great Depression and during the Second World War, investment in industrial fixed capital was at an unusually low level; however, population growth continued. Thus by the end of the War the per capita stock of industrial capital in Canada was less than in the late 1920's. Second, fragmentary data indicate that there has been a long-run trend of decline in the over-all fixed capital-output ratio for Canadian 'industry', but this in part reflects the substitution of social capital such as roads for industrial capital, such as railroad structures. See Table 17.3. Thus, though the over-all fixed capital-output ratio for industry was lower at the end of 1955 than in 1929, this does not mean that Canada had a marked deficiency of industrial capital at the end of 1955. Third, the decline in the over-all fixed capital-output ratio for industry has been concentrated in structures; indeed the machinery and equipment to output ratios were considerably higher at the end of 1955 than in 1929. We believe the more rapid growth in private investment expenditures on machinery and equipment than in private investment in non-residential structures reflects a long-run change in the character of the industrial capital stock in Canada, a trend which we expect to continue. This trend has to some extent been encouraged by the more rapid increases in the prices of structures than of machinery and equipment, which in turn reflects the comparative difficulty of attaining increases in productivity in the construction industries; this is discussed more fully in the study of *The Construction Industry* prepared for us.

Investment expenditure on additions to business and to agricultural inventories were considered separately. The available evidence suggests that the ratio of business inventories to business output has been fairly constant on the average in successive periods of full employment, in the vicinity of 50 per cent. The value of business inventories of all kinds amounted to more than \$10 billion at the end of 1955. There has been a slight decline in the ratio of such inventories to output since the 1920's, reflecting improvements in transportation and inventory handling and controls, but the change is quite small. The relative stability in the ratio indicates that, though additions to business inventories may account for widely varying proportions of the Gross National Expenditure between one year and the next, such additions on the average have tended to grow at about the same rate as business output. Additions to agricultural inven-

tories have also varied widely according to crop and market conditions, but on the average they have tended to grow along with agricultural output.

Table 17.3

**TRENDS IN THE RATIOS OF THE STOCK
OF INDUSTRIAL CAPITAL TO GROSS DOMESTIC OUTPUT
(1949 dollars)**

Year	Structures	Machinery and equipment	Total
1929	2.2	0.8	3.0
1933	3.2	1.2	4.7
1939	2.2	0.7	3.0
1945	1.6	0.6	2.2
1950	1.4	0.9	2.3
1955	1.4	1.1	2.5
(1980).....	(1.3)	(1.4)	(2.7)

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 6, Table 6.13, p. 285.

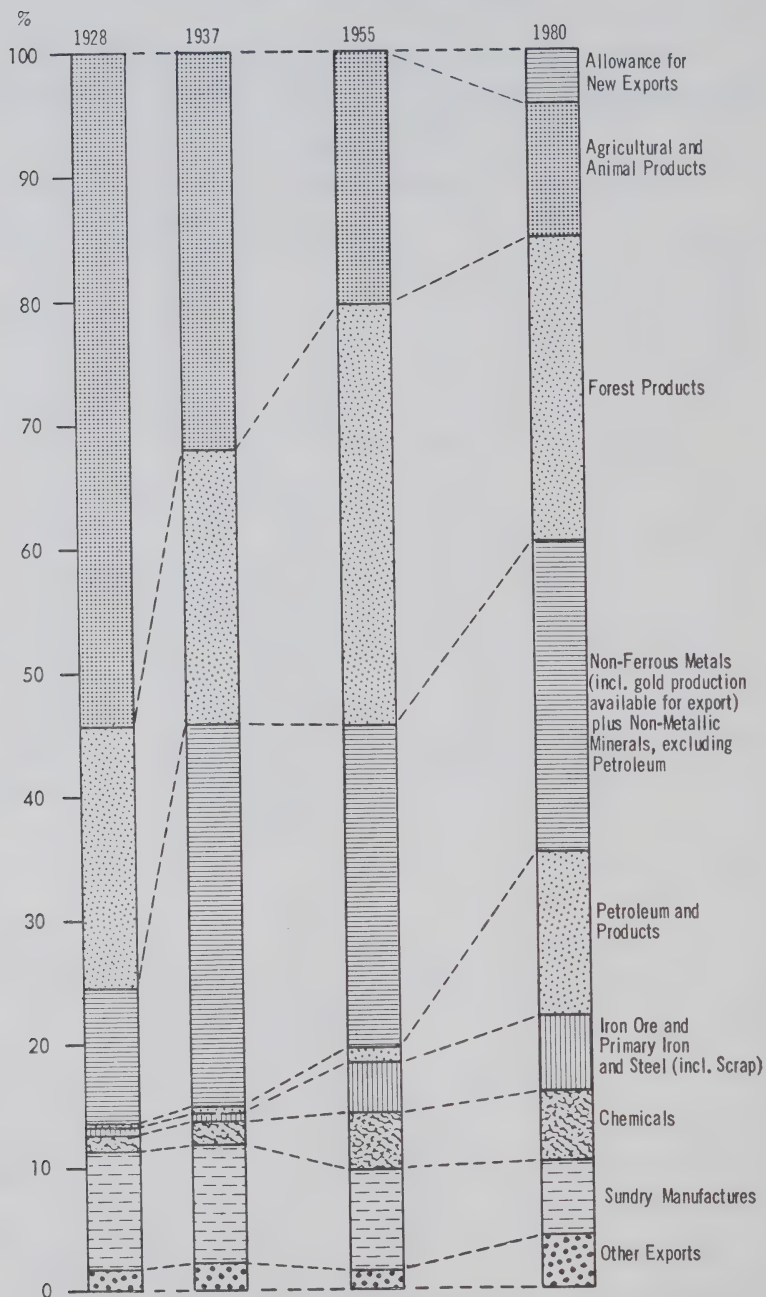
We have treated investment in Housing and Social Capital in a separate chapter of our report. Both of these forms of investment have accounted for larger fractions of our national output of final goods and services in recent years (1953-55) than in the late 1920's; but both types of investment appear to have been abnormally high in recent years due to the efforts at catching up on accumulations of capital requirements. Long-run trends are difficult to identify for social capital because of the substitutions which have taken place between industrial and social capital formation, but for housing there is considerable evidence of a long-run trend of decline in the proportion of the national expenditure devoted by Canadians to providing and maintaining their shelter.

c) *Canada's Foreign Trade*

The relative decline in the size of Canada's foreign trade deserves special comment because of the central place which has been given to export staples and to the 'openness of the economy' in much of the country's economic literature and in discussions of public policy. The decline has been moderate; on the export side it mainly reflects the smaller shares of Canada's output which are exported as agricultural products to the United Kingdom and Western Europe. See Charts 17.III and 17.IV. On the import side the changes are more complex, but part of the decline is proximately due to the reduction in the ratio to national output of Canada's indebtedness to foreigners, to the discoveries of petroleum in Canada, and to a significant replacement of imported goods by Canadian manufacturers. See Charts 17.V and 17.VI. Both on the import and export side of Canada's trade, the smaller relative size of the trade is mainly on British and European account; for goods and services taken

Chart 17. III

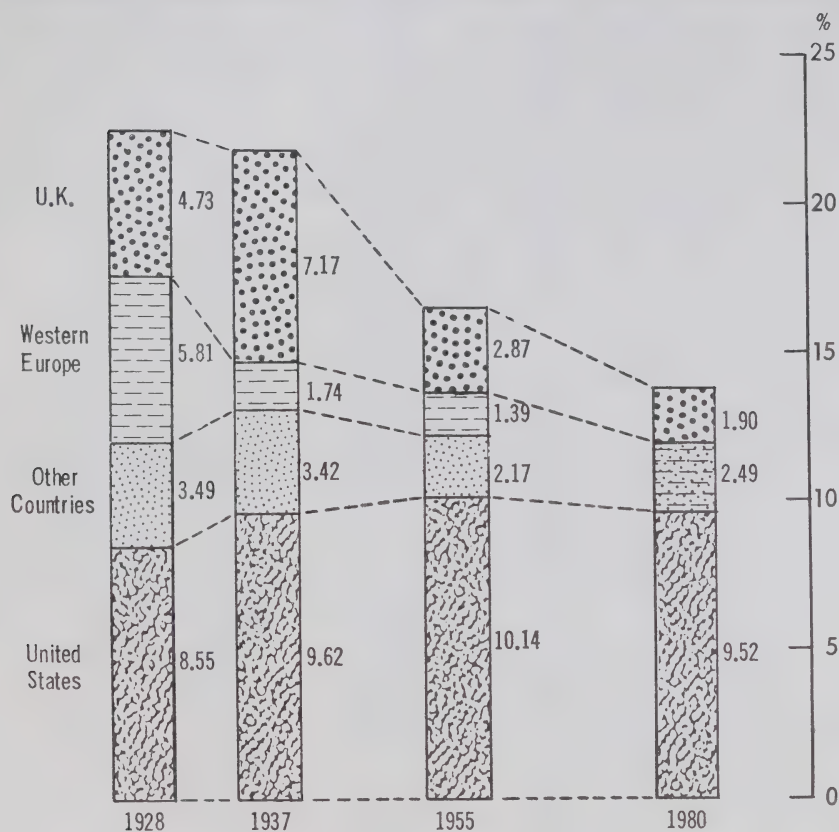
COMPOSITION OF EXPORTS - PERCENT OF TOTAL MERCHANDISE EXPORTS, INCLUDING GOLD



SOURCE: Roger V. Anderson, *The Future of Canada's Export Trade*, 1957, a study for the Commission, Chap. 1, Table 1, p. 8, and Chap. 6, pp. 104-5.

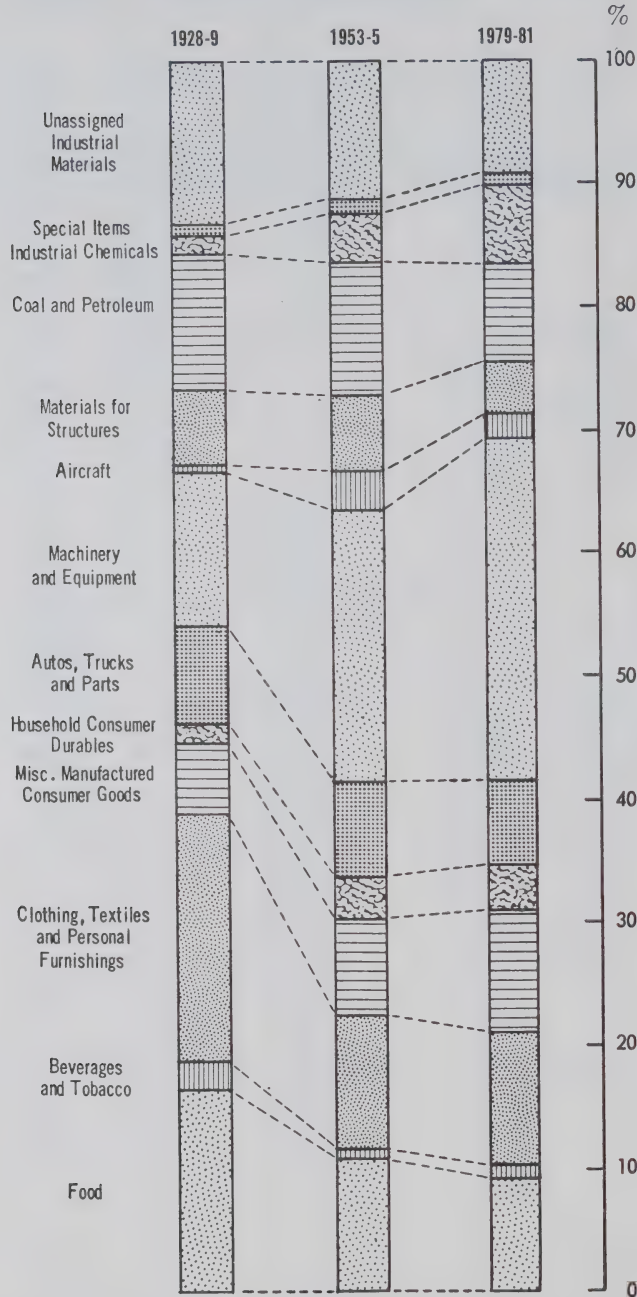
Chart 17. IV

**GEOGRAPHICAL DISTRIBUTION OF CANADIAN MERCHANDISE EXPORTS—
EXPORTS TO VARIOUS AREAS AS % OF GROSS NATIONAL EXPENDITURE**



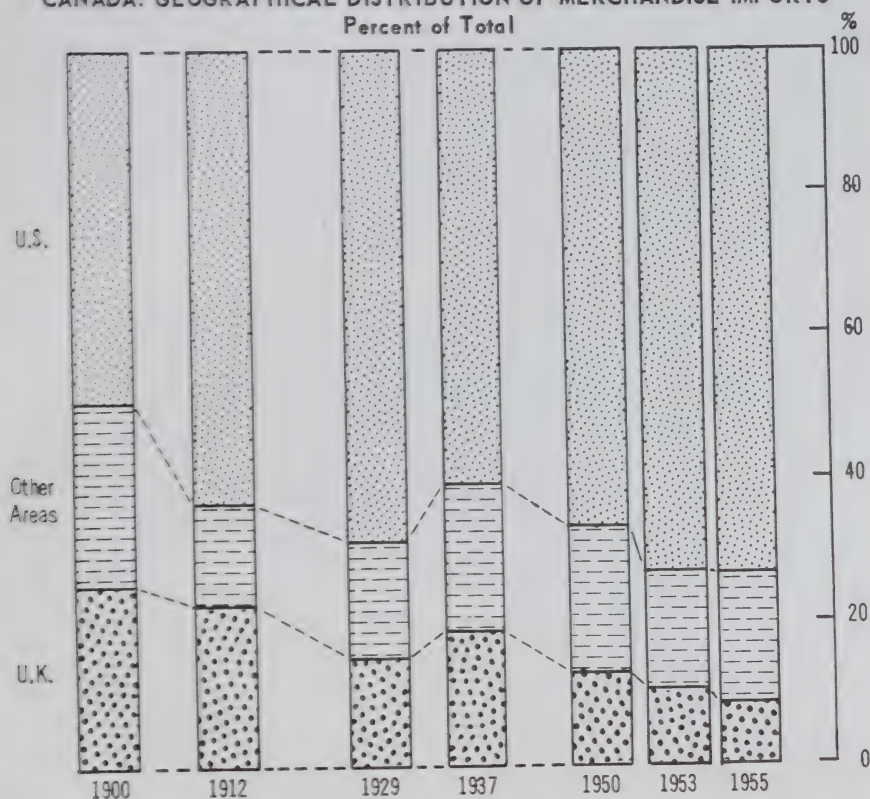
SOURCE: Roger V. Anderson, *The Future of Canada's Export Trade, 1957*, a study for the Commission.

Chart 17. V
CANADA: COMPOSITION OF MERCHANDISE IMPORTS—
EACH CLASS AS % OF TOTAL MERCHANDISE IMPORTS



SOURCE: D. W. Slater, *Canada's Imports, 1957*, a study for the Commission, Chap. 2, Chart VI, p. 18 and Chap. 5, Table 32, p. 97.

Chart 17.VI

CANADA: GEOGRAPHICAL DISTRIBUTION OF MERCHANDISE IMPORTS
Percent of Total

SOURCE: D. W. Slater, *Canada's Imports*, 1957, a study for the Commission, Chap. 2, Table 6, p. 29.

together, imports from and exports to the United States have been about as high a proportion of the Canadian Gross National Expenditure between 1953 and 1955 as they were between 1927 and 1929.

The reasons for the relative decline of Canada's foreign trade are quite complex. We have discussed the environment of world trade in earlier chapters of our report and we have had prepared separate studies of *The Future of Canada's Export Trade*, *Canada - United States Economic Relations*, *Canadian Commercial Policy* and *Canada's Imports*. Part of the explanation of the decline must lie in the relative decrease in world demand for Canada's agricultural products, but this has been at least partly offset by the rapid growth in world demand for industrial materials of mineral and forest origin. There can be little doubt, however, that given less agricultural protectionism than is now rampant in the world, Canada's exports of agricultural products would be larger than they have been in recent years and probably the ratio of Canada's over-all exports to national output would also be larger.

We do not believe that increased relative expensiveness of Canada's imports nor increase in Canada's restrictions on foreign trade have brought about the relative decline in the country's international economic dealings. The long-run changes in Canada's terms of trade have been slight, but they have been favourable to an enlarged rather than a smaller foreign trade. Canadian restrictions on trade have increased and decreased over the last three decades, but they have been less in recent years than in the later 1920's, and thus favourable to an enlarged trade. A large abnormal reduction in the relative size of Canada's international indebtedness took place during the War and early post-war years, associated mainly with the special inter-governmental financial arrangements of war and reconstruction; this is part of the explanation of the smaller size of Canada's foreign trade in goods and services in recent years compared with the late 1920's but it is a condition which was non-recurring. We believe that changes in the internal structure of Canadian demand have not altered the relative size of Canada's foreign trade significantly. Some such changes, including the comparatively rapid growth in the demand for services like wholesaling and retailing, and the growth of governmental expenditures have tended to reduce the relative size of Canada's international trade; however, other changes in the structure of demand have offset these influences, such factors as the shifts in private non-residential investment toward machinery and equipment and of consumer demand from textiles to durable household goods.

We believe that an important part of the explanation of the decline in the size of Canada's foreign trade lies in the improvement in the comparative cost position of import-competing industries in Canada. Some of these improvements may be regarded as fortuitous unpredictable events, such as the discovery since the end of the War of large resources of petro-

leum in Western Canada and the wartime developments of Canadian production of rubber. These have resulted in a large replacement of imports by Canadian production, accompanied by a shift of resources from other, including export, alternatives to import-replacing industries. Some of the developments may be treated as by-products of the newer export staples in Canada, such as the refining of minerals and the manufacture of pulp and paper products, which provide both raw materials and markets for some parts of the rapidly growing Canadian chemical industry; this is one of the more important areas of manufacture in which imports have been replaced by domestic manufacture. But a substantial part of the import-replacement and the shift of resources toward Canadian manufacturing activity for the domestic market rather than the production of export commodities must be regarded as a general by-product of, but a contributor to, the growth in the size of the Canadian market, a growth which has provided opportunities for more economical production of many products in Canada, including such items as primary iron and steel products, automobiles and some household appliances. However, we should emphasize the close substitution possibilities between many kinds of Canadian and imported products; if Canada's agricultural exports had done somewhat better in world markets, Canadians would have imported some of the goods, particularly manufactured goods, which they have instead produced.

d) *Prospective Distribution of Expenditure*

With this background, we turn now to the slippery task of forecasting the distribution of the Gross National Expenditure and of Canada's position in the world economy. The general assumptions of the forecasting work have been set out earlier. A synopsis of our expectations about the distribution of Gross National Expenditure among the main components in the vicinity of 1980 has been included in Table 17.1. These forecasts are in 1955 dollars; with some exceptions they assume that the structure of prices applicable to each of the broad classes of expenditure will not change.

The forecasts suggest that shares in the Gross National Expenditure devoted to governmental and to private investment expenditure will decrease very slightly from the levels of 1953-55, and that personal expenditures on consumer goods and services will increase a shade. The proportionate size of both exports and imports of goods and services are expected to decrease, but with the decrease in the foreign trade ratios being slightly larger for imports than for exports; thus, the net foreign investment in Canada, as measured in the national expenditure accounts, is expected to diminish somewhat as a fraction of the Gross National Expenditure.

The smaller proportion of the national output which it is expected will be used for governmental purposes primarily reflects the assumption

of a decrease in the share of the national output devoted to government defence expenditure. Current non-defence expenditure by the combined levels of government are expected to increase more rapidly than the Gross National Expenditure. Civilian employment by the Federal Government and by the provincial governments is expected to increase more rapidly than the total population, with municipal employment increasing about in proportion with the increase in total population; this reflects the gradual extension of government services which has been going on in Canada and in other industrialized countries during the past half century and which we expect will continue into the future. Also, it is assumed that the remuneration of government employees will rise at the same rate as output per man-year in the business sector of the economy; when governments and business are bidding for the same kinds of skills, the differentials in rates of pay between them cannot change too radically. In an earlier chapter we have set out estimates of requirements for social capital; these correspond roughly to government non-defence investment expenditure. In Table 17.1 we suggest that such spending may account for a slightly smaller proportion of the Gross National Expenditure around 1980 than they have between 1953 and 1955. In part this fractional decline in share is due to the recent high base of government investment from which the projections were made. In part it reflects the way in which the estimates of social capital requirements were made, in which only moderate allowances for increased standards of adequacy were assumed. Canadians may wish somewhat larger than the assumed proportions of their higher standard of living to take the form of improved hospitals, schools, universities, highways, parks, art facilities, museums and so on, in which case a somewhat larger fraction of the national output will be devoted to governmental investment expenditure than is indicated in Table 17.1. Also, in the immediate future public investment may require as large or even a larger proportion of the national output than it did between 1953 and 1955 to take care of existing backlogs and the continued upsurge of Canada's population.

Investment in fixed industrial capital is highly variable over time and as yet the knowledge of economists does not permit predictions to which high degrees of confidence can be attached. We believe that as a long-run average, the share of the national output devoted to gross investment in fixed industrial capital in the vicinity of 1980 will not be very different from that of 1953-55, though a slight increase in the fraction is more likely than a decline. Also we believe that of this investment a larger part will consist of machinery and equipment and a smaller part of structures. The basis of these forecasts is set out in Chapter 6 of the study prepared for us on *Output, Labour and Capital in the Canadian Economy*. A rapid growth in output requires a rapid growth in the stock of capital and thus the assignment of a large fraction of the national output to investment. Though the over-all capital-output ratio for Canada

declined between the late 1920's and 1955, the trend in recent years has been reversed, in part because Canadian output has grown up to the stock of railroad and other communication facilities which existed in the 1920's, and in part because of the intensified use of machinery and equipment in industrial processes. The relatively larger share of the stock of capital which it is expected will take the form of machinery and equipment, itself encourages an increase in the share of national output devoted to gross investment expenditure. In production processes, machinery and equipment are used up more quickly than structures. Thus the higher the fraction of the capital stock as machinery and equipment, the higher the annual gross investment required. The numbers set out in Table 17.1 reflect these views, suggesting that private industrial investment in structures may be a slightly smaller fraction of the aggregate national output in 1979-81 than they were between 1953 and 1955, while private industrial investment in machinery and equipment may be a significantly larger fraction.

There are a number of important elaborations and qualifications to these forecasts. Investment expenditures are not simply a matter of providing a minimum capital requirement for a growing output; they are encouraged and facilitated by the growth of output and the climate of aspiration and enterprise. Our views on prospective levels of investment in industrial fixed capital reflect our judgment that the vigour of private investment processes in Canada in the future will be as great as they have been in our past. The predictions must be tempered or qualified in at least one important respect; we are likely to experience in the future as in the past a fairly wide variability in investment expenditures. It is inherent in the nature of capital equipment that replacements and additions to the stock can be accelerated or postponed depending on the age structure and other relationships of the existing stock to current output, the pace of economic growth and the fluctuations from optimism to pessimism through which the community periodically goes.

Prospective investment in residential housing was dealt with in an earlier chapter along with social capital. The available evidence suggests that as a long-run trend, Canadians, like Americans, have devoted, and will continue to devote, smaller proportions of their growing incomes to providing shelter. Even so, the per capita real expenditures on shelter have been increasing in absolute terms. Thus, the forecasts of investment in housing reflect the growth, age structure, family formation and location of the Canadian population and make a moderate allowance for improvement in the average quality of Canadian housing. Nevertheless, the proportion of Canada's national product devoted to gross investment in new residential housing is expected to be somewhat smaller in 1979-81 than it was between 1953 and 1955. Like industrial investment in fixed capital, investment in residential housing will undoubtedly vary widely during the next

twenty-five years depending on rates of family formation, urbanization and increases in income; our studies of the age-structure of the Canadian population suggest that the construction of houses may be a little below the average in the next few years but above the average for a period beginning about 1965.

These trends in investment in housing and social capital and in industrial fixed capital should be reviewed carefully as more evidence becomes available, for they have very important implications for the Canadian economy. If the trends turn out to be as we suggest, that is, of a smaller fraction of the national output devoted to structures and a larger fraction to machinery and equipment, then a less rapid growth may be expected in the Canadian construction industries and a more rapid growth in Canadian production and imports of machinery and equipment. Flows of savings have to be adjusted to the changing character of investment activity. The likely variability of investment expenditure imposes major problems of maintaining stability of the Canadian economy.

For business inventories it is our view that further improvements in transportation and in materials-handling and inventory-control facilities may provide some economies, but the long-run decline in the average ratio of such inventories to business output is liable to be fairly small. Thus we expect that, on the average, roughly the same proportion of the national output will be devoted to additions to business inventories in the future as between 1953 and 1955. On the average, agricultural inventories will continue to grow, but slowly, because we expect a rather small increase in agricultural output; these inventories will likely have a wide variation from year to year.

Our forecasts suggest that consumption will account for a slightly larger fraction of total national expenditures on final goods and services in 1980 than they have in recent years; this contrasts quite sharply with the decline of the fraction during the past three decades. The difference is primarily due to the assumptions and expectations of a less rapid growth in government expenditures in the future than occurred during the past three decades, which in turn implies a less rapid increase in the net tax burdens imposed on the private sectors of the community. If our projections of government expenditure turn out to be under-estimates, our estimates of total consumption expenditure will correspondingly be excessive. The relative size of depreciation allowances, undistributed corporation profits and of personal saving also bear on the ratio of consumption to Gross National Expenditure. The available evidence suggests that depreciation allowances may increase somewhat more quickly than the Gross National Expenditure, mainly because of the gradual shift in the form of the stock of capital from structures to machinery and equipment and that undistributed corporate profits will increase more or less in step

with Gross National Expenditure. As to personal savings, there is some uncertainty and substantial year to year fluctuation; but the Canadian and American evidence indicates little long-run change in the ratio of such savings to personal disposable income in the past. We see no good reason for thinking that the trend of the ratio will be different in the future.

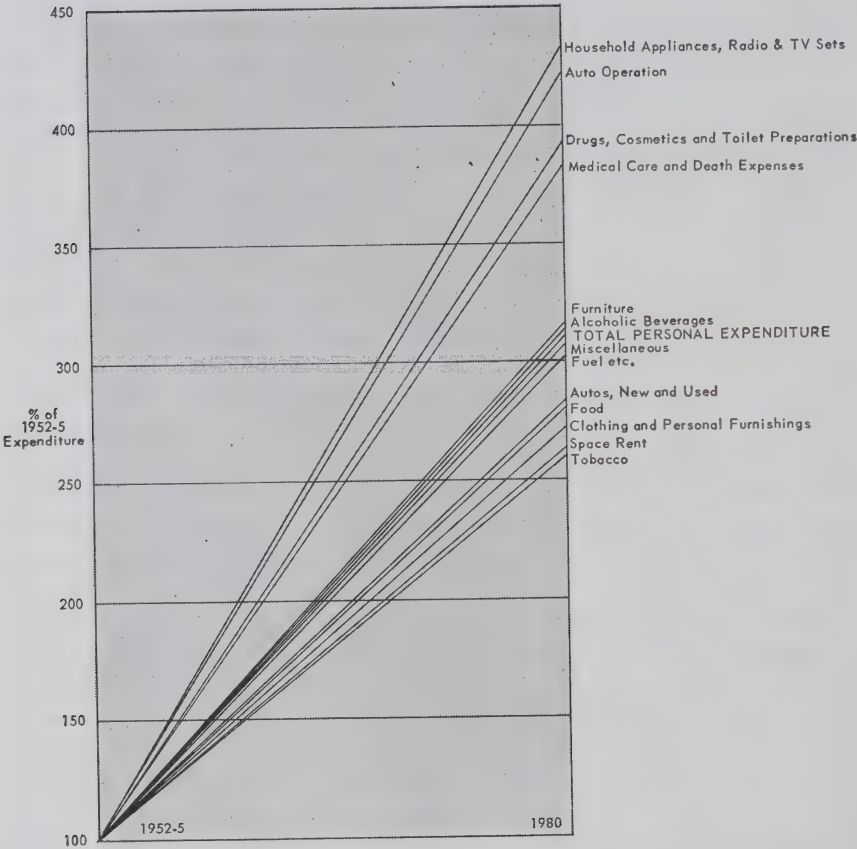
The combination of a decline in the fraction of the national output devoted to government expenditures on goods and services, of a slight increase in the fraction which is deducted as business savings, and a stability in the ratio of personal saving to personal disposable income imply an increase in personal expenditure at about the same rate as the Gross National Expenditure. On a per capita basis, in terms of 1955 dollars, this means roughly a two-thirds increase from the present levels of consumption, to which we should add the reminder of a continued decrease in average hours of work as discussed in Chapter 16.

How will the proportion of Canada's expenditure devoted to consumption be distributed among various kinds of goods and services? See Chart 17.VII. It appears likely that the fraction devoted to expenditure on food, tobacco, clothing, shelter, fuel, household supplies and personal care will be smaller in the future than they have been in recent years. For food, the absolute level of per capita expenditure is expected to increase considerably even though the quantity of food consumed per person does not change very much. On the other hand, it seems probable that the fraction of Canadian personal budgets devoted to the purchase and maintenance of household durables, automobiles and hobby and recreational equipment and to medical care, travel, electric, gas and telephone services and university education will increase. These are trends which must be reviewed as more experience accumulates, but they are of considerable importance to the structure of the economy. If smaller proportions of our incomes are devoted to food and shelter and clothing, it follows that less than average rates of growth will result, other things being equal, in Canadian agriculture and housebuilding and the manufacture of clothing. Higher than average increases in expenditure on various kinds of durable goods provide better opportunities for economies of large-scale production in the manufacture of such items in Canada. Rapidly expanding demands for medical care impose strains on the available facilities.

Both for exports and for imports of goods and services our projections suggest a continuation of the long-run decline in the size of Canada's foreign trade, compared with national output. One may reasonably ask why such a relative shrinkage of foreign trade is expected and, more important, about the consistency of our views on the growth in Canada's foreign trade and gross national output. As we explained earlier in our report, there is not much prospect of large reductions in the levels of protection of agricultural and secondary manufacturing industry through-

Chart 17.VII

PROJECTIONS OF DISTRIBUTIONS OF TOTAL PERSONAL EXPENDITURE
ON CONSUMER GOODS AND SERVICES IN 1949 DOLLARS



SOURCE: D. W. Slater, *Consumption Expenditures in Canada, 1957*, a study for the Commission, Chap. 4, Table 26, pp. 74-75.

out the world, and therefore a quite limited growth is expected in the external demands for the products of Canada's agricultural and secondary manufacturing industries. There are favourable opportunities for Canadian exports of industrial materials, particularly to the United States but also to the other industrial areas of the world. The available and foreseeable supplies of mineral and forest products in Canada together with these market opportunities imply a rapid growth of exports of such products from Canada, but probably not a sufficient growth to sustain the present over-all ratio of exports to Canada's Gross National Expenditure. We do not treat this as a serious limitation on rapid Canadian economic growth mainly because of our belief that significant further improvements in the world competitive position of Canada's import-competing industries will take place.

As to the structure of exports (see Chart 17.III), the future list will probably be dominated by a number of important staples of the present day — pulp and paper, lumber, non-ferrous metals, and asbestos. The big changes are likely to be the relative growth in exports of crude petroleum, natural gas, and iron ore, and the continued decline of the proportion due to agricultural and animal products. A guess as to the future geographical distribution of Canada's exports is even more hazardous than one concerned with the commodity composition of the trade. It appears much more likely that the proportion flowing to the United States would increase than decrease, with that flowing to the United Kingdom and Western Europe probably decreasing.

As to imports, the past trend of change in the structure appears likely to continue. (See Chart 17.V). Mainly because of the rapid growth expected in Canadian demands, an even larger share of the imports will probably take the form of machinery and equipment, durable consumer goods, miscellaneous manufactured consumer goods and parts and components for the manufacture of such goods in Canada. Smaller fractions of Canada's imports will likely be due to food, textiles, fuels, tobacco and alcoholic beverages and materials for structures. Partly because of the decline in the ratio of merchandise imports to Gross National Expenditure and partly because of the smaller part of those imports due to fuels, payments to foreigners for freight and shipping services will likely increase less rapidly than the Gross National Expenditure. Higher incomes and an intensive growth in business activity will encourage continued rapid increases in payments to foreigners for tourist and travel and for business services. Also the servicing of Canada's present indebtedness to foreigners together with a continued growth of Canada's gross liabilities imply much larger payments of interest and dividends to foreigners than took place between 1953 and 1955, though the long-run average growth in such payments may be somewhat less than that of Canada's gross national output.

The Distribution of Output

We turn now to the distribution of output among the various industries or sectors of the Canadian economy. It will be recalled that the difference between Gross Domestic Product and Gross National Product is a small one, the former measuring the output of factors of production domiciled in Canada and the latter measuring the output of factors owned by Canadian residents. Because of difficulties in interpreting the output from housing and of the military personnel in Canada we will put these items aside for the moment and concern ourselves with the division of total output exclusive of these services.

Partly on statistical grounds and partly reflecting economic relationships, the distribution of output is somewhat imperfectly meshed with the distribution of expenditures on final goods and services. At the present stage of statistical development in Canada it is not always possible to bridge the gap between the output of industries and the flow of products to final users. Even if this were possible the trends in the distribution of output would not be completely reflected in the demands for, and expenditures on, various goods. For example, a somewhat more rapid increase may take place in the Canadian output of secondary manufacturing industry than in the over-all demand for manufactured products in Canada if substitutions of Canadian produced for imported goods takes place.

We have summarized the historic record of the distribution of the Gross Domestic Product among the main industry sectors in Table 17.4 and in Chart 17.VIII. During the last three decades the outstanding changes in the distribution of output have been a large decrease in the fraction due to agriculture and the large increases due to the resource industries and to primary and secondary manufacturing. Comparing 1953 to 1955 with 1927 to 1929, the proportion of Canada's output originating in agriculture has decreased from 23.4 per cent to 12.7 per cent. Between the same periods output originating in the resource industries, primary manufacturing and secondary manufacturing considered together has increased from 28.2 per cent to 38.9 per cent of the total. Smaller proportionate changes in output have taken place in other sectors with declines being found for transportation, storage and communication and for trade, finance and services; modest increases are due to the construction industries and to civilian government and community services.

The large proportionate decline in the output of Canadian agriculture reflects the comparatively unfavourable growth in the world demand for Canadian agricultural products, the modest growth in the per capita volumes of food consumed in Canada, and the comparative attractiveness of non-agricultural employments for men and capital in Canada. These and other factors affecting Canada's agricultural industries were discussed in Chapter 8 and are treated even more fully in the study *Progress and Prospects of Canadian Agriculture*.

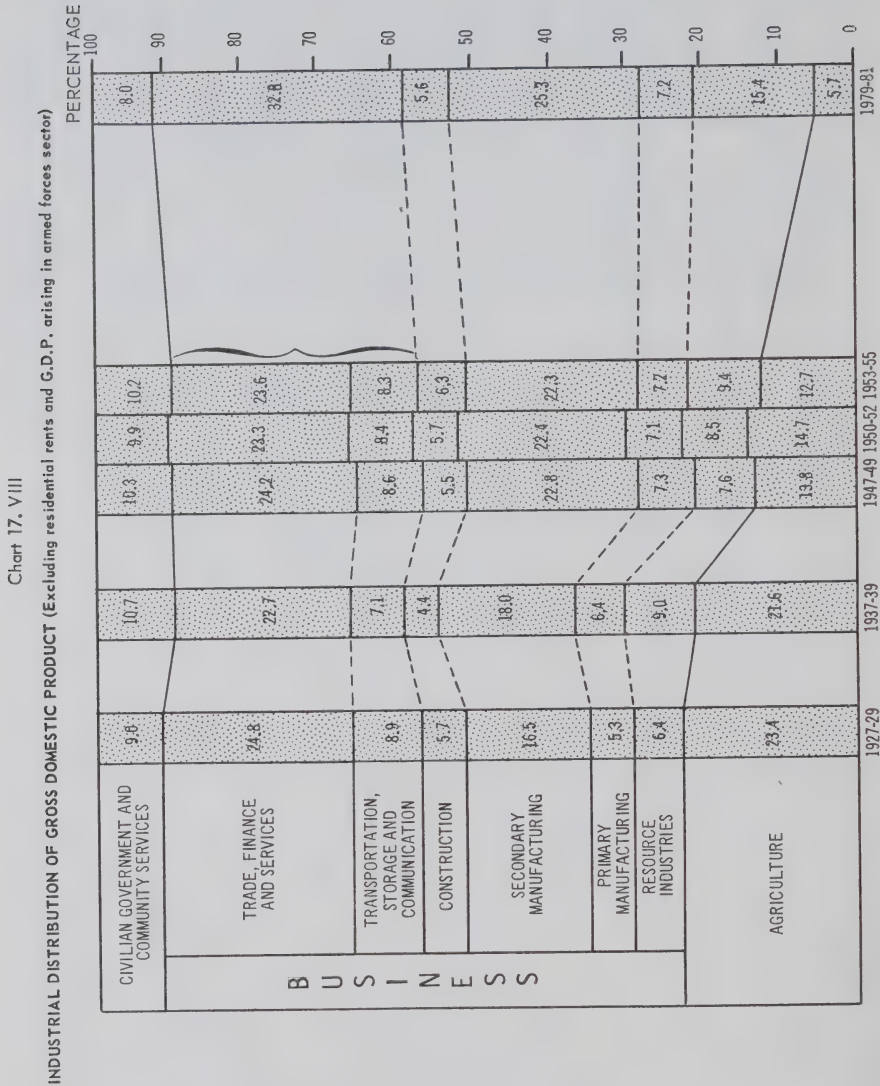
Table 17.4

INDUSTRIAL DISTRIBUTION OF GROSS DOMESTIC PRODUCT
(EXCLUDING RESIDENTIAL RENTS AND G.D.P. ARISING IN ARMED FORCES SECTOR)
(averages for selected years 1926-55; forecast for 1980)

<i>Billions of 1949 dollars</i>							
	1927-29	1937-39	1947-49	1950-52	1953-55	1979-81	
Agriculture.....	2.01	1.85	1.89	2.32	2.22	2.91	
Resource industries.....	.55	.77	1.04	1.34	1.64	7.85	
Total manufacturing.....	1.87	2.09	4.12	4.67	5.13	16.60	
Primary manufacturing.....	1.45	.55	1.00	1.13	1.25	3.70	
Secondary manufacturing.....	1.42	1.54	3.12	3.54	3.88	12.90	
Construction.....	.49	.38	.75	.91	1.10	2.85	
Transportation, trade and services, etc.....	2.88	2.56	4.49	5.01	5.57	16.72	
Transportation, storage and communication.....	.76	.61	1.18	1.33	1.44		
Trade, finance and services.....	2.12	1.95	3.31	3.68	4.13		
Business.....	5.80	5.80	10.40	11.93	13.45	44.02	
Civilian government and community services.....	.78	.92	1.41	1.57	1.77	4.08	
Total.....	8.58	8.57	13.70	15.82	17.44	51.00	
Per cent							
Agriculture.....	23.4	21.6	13.8	14.7	12.7	5.7	
Resource industries.....	6.4	9.0	7.6	8.5	9.4	15.4	
Total manufacturing.....	21.8	24.4	30.1	29.5	29.5	32.5	
Primary manufacturing.....	5.3	6.4	7.3	7.1	7.2	7.2	
Secondary manufacturing.....	16.5	18.0	22.8	22.4	22.3	25.3	
Construction.....	5.7	4.4	5.5	5.7	6.3	5.6	
Transportation, trade and services, etc.....	33.7	29.8	32.8	31.7	31.9	32.8	
Transportation, storage and communication.....	8.9	7.1	8.6	8.4	8.3		
Trade, finance and services.....	24.8	22.7	24.2	23.3	23.6	86.3	
Business.....	67.6	67.7	75.9	75.4	77.1		
Civilian government and community services.....	9.0	10.7	10.3	9.9	10.2	8.0	

NOTE: Detail does not always add to totals because of rounding.

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 7, Table 7.2, p. 315.



The comparatively rapid growth in the resource industries and in primary manufacturing represents a new phase in the long history of export staples based on abundant natural resources, a history which began with cod fish and furs and which has centred successively on timber, lumber, meat and cheese, wheat and now minerals and forest products. We pointed out in the summary of Canada's external trade that the outstanding development in exports over the past thirty years has been the decline in exports of food to the United Kingdom and Western Europe, and the expansion of exports of mineral and forest products to the industrial nations of the world, but particularly to the United States. This has been encouraged by the comparatively favourable developments in the world demand for industrial materials, in turn due to a comparatively rapid increase in the total consumption of such items, to growing scarcities in the production of some of these items in the industrial areas themselves and to the much more favourable treatment of imports of such items than of agricultural commodities in the commercial policy of the industrial nations of the world. The rapid growth of these industries has also been based on the under-exploited natural resources which existed in the late 1920's and the additions to our knowledge of minerals since that time. Of very great importance in the development of primary manufacturing has been the availability of large sources of cheap hydro-electric energy; in recent years about one-half of all the electrical energy consumed in Canada has been used in the production of pulp and paper and the refining of minerals. The resource industries and primary manufacturing are also capital-intensive and the availability of world financial resources and a comparative cheapening of capital goods has provided part of the stimulus to the rapid increase in output in these industries.

The comparatively large and rapid increase in the proportion of Canadian output due to secondary manufacturing industries is one of the outstanding changes in the shape of the Canadian economy during the last three decades and one of the most difficult to appraise. We have devoted a chapter of our report to these industries, and a general study and a series of specialized studies on secondary manufacturing were prepared for us. It is tempting to view the rapid growth of secondary manufacturing in Canada as mainly reflecting an improvement on a competitive position of Canadian industries vis-à-vis alternative sources of supply and thus to treat the growth of Canadian output as largely a substitution of Canadian for foreign produced goods. We believe that this argument has some merit but that other factors have also made major contributions to the growth in secondary manufacturing.

For the typical industry in the secondary manufacturing sector imports capture a slightly smaller share of the Canadian market now (1953-55) than they did in the late 1920's. For a number of industries including primary iron and steel, chemicals, autos, auto parts, synthetic textiles, and

petroleum manufactures, the declines in import shares of the Canadian market have been quite substantial. However, a large part of the more than proportionate growth in secondary manufacturing must be imputed to the comparatively rapid increase in the Canadian demand for manufactured goods rather than to a replacement of imported by domestic commodities. Many kinds of activity have been transferred from the home and service sectors to the manufacturing sectors of the economy. The demand for durable consumer goods and for machinery and equipment have grown more rapidly than the total national expenditure. The comparatively large increase in secondary manufacturing in the Canadian national output parallels similar developments in the United States and in other industrial areas where there has been little net substitution of imported for domestic goods.

In view of the popular notion of rapid growth of government activities in the community, it is somewhat surprising to find the slight increase in the proportion of the national output attributable to government and community services. These data greatly underestimate the over-all growth of government in the community, as the rapidly expanding parts of governmental activities have been military expenditures and transfer payments, neither of which is reflected in government output. The slight proportionate increase in the contribution of the construction industry to Canadian national output reflects the temporarily high expenditures on structures in recent years and should not, therefore, be looked upon as a guide to long-run trends in the distribution of output in the economy.

Somewhat surprising has been the decline in the proportion of output due to transportation, storage and communication industries, in view of the expectation that increased economic specialization associated with economic growth would involve a relative growth in the exchange and moving about of commodities. We have discussed the transportation industries at some length in a separate chapter, and a special study has been prepared for us on the subject. The decline in their share of national output is attributable to a number of influences, including the growing up of Canada to its railroad network, the comparatively rapid increase in manufacturing production compared with the aggregate output of bulk commodities and thus to a relative growth in the traffic movements which have high value to transportation cost ratios, the substitution of private automobile and private truck transport for that provided by the business sector, and improvements in materials-handling and inventory-control systems.

Somewhat unexpectedly we find that the share of national output due to trade, finance and (private) services considered together has also declined slightly as a fraction of the national output. As was pointed out in our discussion of the service industries, the consumption of services in Canada and in other industrial countries has been progressively inhibited

by their increasing relative expensiveness, which in turn reflects the lower than average increase in productivity in such industries and the necessity of paying comparable wages in the service industries to those in the economy as a whole. Indeed, in view of the increasing relative costs of typical operations in the trade, finance, and private service sectors, it is perhaps more surprising that the proportion of the output due to these sectors has continued to be so high; this must be imputed to the very strong growth in the effective demand for such services in the country.

Whereas the average output of the economy is expected to increase by about 190 per cent, between 1953-55 and 1979-81, agricultural output is likely to increase by barely 30 per cent, output of the resource industries by 375 per cent and of secondary manufacturing by 230 per cent. Thus the proportion of output due to agriculture is expected to decrease very sharply, that due to the resource industries to increase greatly, with a substantial increase in the proportion due to secondary manufacturing (though a somewhat less rapid relative growth than was experienced during the last thirty years). See Table 17.4 and Chart 17.VIII. Smaller proportionate changes are due to other sectors, declines being expected for construction, increases for transport, trade and services considered as a whole, and declines in the share due to government and community services. The comparatively large decline in government output is partly due to a statistical quirk in the valuation of government services, which is explained fully in our study, *Output, Labour and Capital in the Canadian Economy*; if the valuation of various kinds of output were made with the structure of prices which will probably exist by 1980, the government proportion would probably show a trend of increase.

The expected decline in agriculture's share of the national output is based on a comparatively unfavourable long-run outlook for exports of agricultural products, and a limited increase in the per capita Canadian demand for food in the forms in which it is prepared by the agricultural industry. Certain sectors of agriculture have much more favourable prospects than others, the more rapidly expanding will likely include the production of livestock and of certain fruits and vegetables; less optimistic prospects exist for wheat production and for some dairy products.

A quite startlingly rapid growth is in prospect for output for the resource industries. This is due to continued favourable market opportunities abroad, particularly in the United States, and to the large increments which have taken place in our knowledge of available resources during the past ten years and the confidence with which further increments are expected. The most important of these additions is likely to be in petroleum, but iron ore also promises big gains. However, for many other minerals, substantial increases in knowledge of our resources have taken place; such developments as the Lynn Lake in nickel, and Manitouwadge in other base metals immediately spring to mind. Collectively the minerals have become, and

are likely to become even more, the central staples of Canada's specialization in the world economy. In the chapter on forestry we reviewed the extraordinarily rapid growth in the past thirty years; our expectation is of a less rapid growth in the future, partly because of a slower rate of increase in the consumption of newsprint, the advanced stage already reached in the substitution of paper for other materials such as jute and cotton, and the comparative improvement in the supplies of wood resources in other parts of the North American economy. While Canada's forest resources are capable of sustaining larger annual cuttings than are now made, we are approaching somewhat more closely the limits in cutting accessible forest areas without substantially higher investment.

Another difference from the past experience is that the future prospects are for primary manufacturing to grow about as rapidly as total output, whereas that sector had previously grown more rapidly. Essentially this means that the pulp and paper industries and the refining of minerals are expected to grow more slowly than in the past. It was the combination of natural resources, high transportation costs of the rawest forms of materials and the abundance of hydro-electric energy which provided the basis for the phenomenal increases in primary manufacturing in the past. Processing of the newer staples, such as petroleum, natural gas, iron ore and uranium is much less oriented toward the sources of the minerals and toward hydro-electric power installations than was that of the older staples of aluminum, copper, nickel, zinc, woodpulp and newsprint.

The somewhat slower increase expected in the proportion of the national output due to secondary manufacturing than in the past also requires comment. This view is based in part on experience of advanced industrial countries, which shows that after a certain point of increase in economic wealth, a trend of more than proportionate growth in the demand for manufactures than for total output loses some of its "steam". As we have indicated in the chapter on secondary industries, it is our expectation that the Canadian demand for manufactured goods will grow not very much more rapidly than Gross National Expenditure in the future. The trend also reflects the view that Canada is unlikely to find export markets for a greatly enlarged share of its output from secondary manufacturing industries. However we believe that modest improvement in the relative cost position of our secondary industry is likely to take place; thus we expect that imports of manufactures will increase somewhat less rapidly than the Canadian demand for manufactures, and hence Canadian *output* of such products will increase a little more rapidly than Canadian demand. The less than proportionate growth expected in output of the construction industries is attributable to a gradual shift in the stock of capital from structures to machinery and equipment, to the extraordinarily high base (1953-55) from which the projections are made, and to the modest improvements projected in Canadian standards of housing and social

capital. The expected output of the transportation, trade and services* sectors, considered together is a residual estimate, not entirely comparable with the forecasts in the earlier chapters on transportation and the service industries. However we believe that the slight increase in the proportion of Canadian output due to the transportation, trade and services* sectors shown in Table 17.4 is fairly realistic; there appears to be a strong trend of increase in Canadian demand for the output of these sectors, so that output may grow rapidly in spite of the increasing relative expensiveness of their output.

The Distribution of Employment and Capital Requirements by Industries

We turn now to the distribution of employment among the main sectors of the economy. Already, in Chapter 16, we have recorded our judgment on the division of employment among three main sectors of the economy, agriculture, business, and government and community services. In addition to some slight further treatment of these broad groups, we wish here to record some views on the division of employment within the business sector among the resource industries, primary and secondary manufacturing, construction, and transport, storage, communication, trade, finance and services. More details on these sectors and of various industries within them are found in the special studies prepared for the Commission, some of the results of which are presented in the earlier chapters of this report.**

We have placed summary data on the past trends and the prospects for the distribution of employment in Table 17.5 and Chart 17.IX. During the past three decades there has been an extremely large decrease in the proportion of Canada's employed labour force found in agriculture, and a large and rapid growth in the proportion working in trade, finance and services and in secondary manufacturing. A smaller change absolutely, but proportionately a large one, has been the increase in the employment in government and community services. Smaller changes took place in the proportions employed in other sectors, increases being found for construction and primary manufacturing and decreases in transport, storage and communication and for the resource industries.

* Other than community services.

**There are two minor inconsistencies in the distribution of employment as presented here and as found in the special studies. First, the forecast of employment in agriculture, as we have already noted in Chapter 8, does not tally exactly with the forecast contained in the study prepared for us on *Progress and Prospects of Canadian Agriculture*. Secondly, the classification of employment used in the study on *The Service Industries* and adopted in Chapter 13 differs from that used here. In the earlier chapter, the service industries included what have been called government and community services in this chapter, but in addition covered trade, finance, and personal services and also those professional services which are carried on outside the framework of government and public institutions. The latter items have been included in the business sector in the forecast of aggregate output and in the discussion of the distribution of employment in this chapter.

Table 17.5

INDUSTRIAL DISTRIBUTION OF THE CIVILIAN EMPLOYED LABOUR FORCE

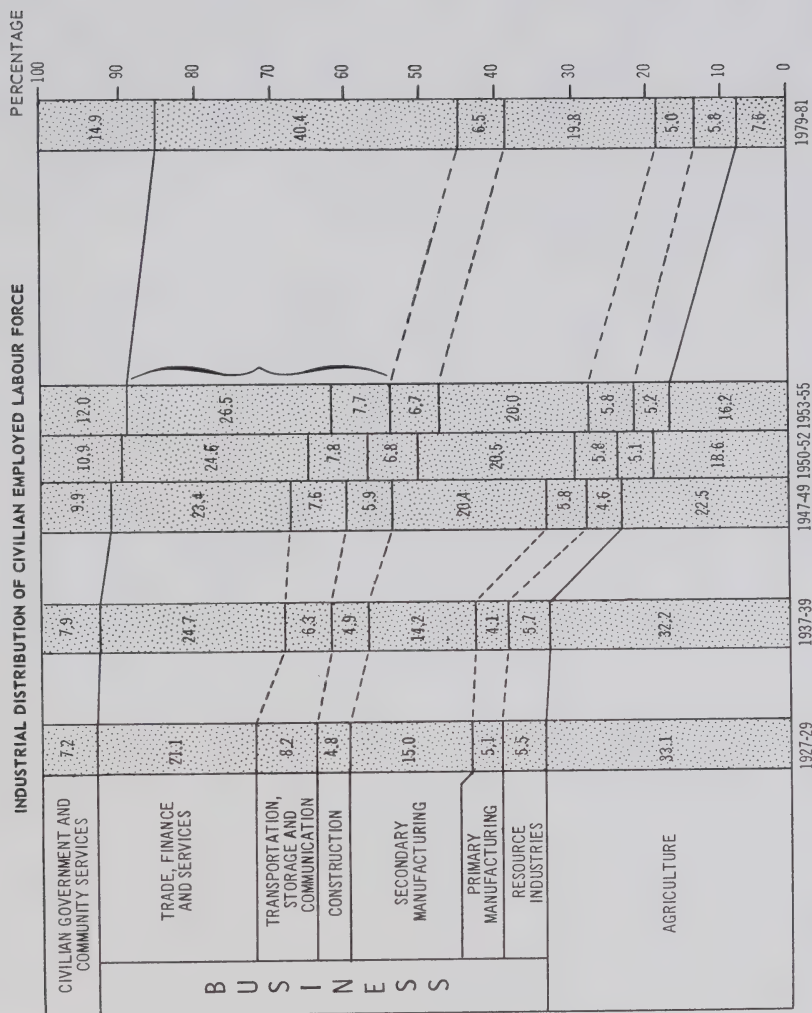
(averages for selected years 1926-55; forecast for 1980)

Thousands							
	1927-29	1937-39	1947-49	1950-52	1953-55	1979-81	
Agriculture.....	1,217	1,274	1,099	948	849	735	
Resource industries.....	202	227	223	259	273	555	
Total manufacturing.....	740	729	1,285	1,339	1,354	2,393	
Primary manufacturing.....	188	164	283	293	304	486	
Secondary manufacturing.....	552	565	1,002	1,046	1,050	1,907	
Construction.....	175	194	288	344	351	625	
Transportation, trade and services, etc.....	1,076	1,231	1,514	1,648	1,798	3,890	
Transportation, storage and communication.....	301	249	371	400	406		
Trade, finance and services.....	775	982	1,143	1,248	1,392	7,463	
Business.....	2,193	2,382	3,309	3,589	3,775	1,439	
Civilian government and community services.....	263	313	484	556	631		
Total.....	3,675	3,969	4,893	5,093	5,256	9,637	
Per cent							
Agriculture.....	33.1	33.2	22.5	18.6	16.2	7.6	
Resource industries.....	5.5	5.7	4.6	5.1	5.2	5.8	
Total manufacturing.....	20.1	18.3	26.2	26.3	25.8	24.8	
Primary manufacturing.....	5.1	4.1	5.8	5.8	5.8	5.0	
Secondary manufacturing.....	15.0	14.2	20.4	20.5	20.0	19.8	
Construction.....	4.8	4.9	5.9	6.8	6.7	6.5	
Transportation, trade and services, etc.....	29.3	31.0	31.0	32.4	34.2	40.4	
Transportation, storage and communication.....	8.2	6.3	7.6	7.8	7.7		
Trade, finance and services.....	21.1	24.7	23.4	24.6	26.5	77.5	
Business.....	59.7	59.9	67.6	70.5	71.8	14.9	
Civilian government and community services.....	7.2	7.9	9.9	10.9	12.0		

NOTE: Detail does not always add to totals because of rounding.

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 7, Table 7.1, p. 311

Chart 17. IX



SOURCE: Table 17.5.

The extremely large decline in the percentage of Canada's labour force employed in agriculture is mainly due to the sharp decline in the portion of Canada's output originating in agriculture, but mechanization and changes in the structure of agriculture have also contributed. Since 1940, but mainly since 1945, there has been a phenomenal mechanization of Canadian agriculture, which is very largely a substitution of capital for labour in the process of agricultural production. Also a fairly large part of employment — or perhaps more appropriately, underemployment — in the subsistence parts of Canadian agriculture has been met by people moving off the farm, with farms being abandoned or consolidated into larger farm enterprises. Much remains to be accomplished in this regard, but past experience suggests that the problem is amenable to solution, given continued prosperity, patience, and encouragement.

The comparatively rapid growth in employment in trade, finance and (private) services reflects the strength of demand of Canadians for such services. The lower than average increases in productivity in these industries have meant increasing relative cost of such services, but the demand has been such as to sustain output; to do so in the face of the lower than average increase in productivity implies that the labour force employed in these sectors must increase more rapidly than the rate of increase of output of the sectors, which is precisely what we observe. The increase which has taken place in the proportion of Canada's labour force employed in secondary manufacturing is primarily due to the increased proportion of Canadian output derived from this sector; the rate of increase in productivity is about the average for the economy as a whole. Of course, within the sector, there have been widely differing combinations of increases in output, employment and productivity; at one extreme, we have noticed chemicals, for which there have been fairly modest increases in employment considering the phenomenal rate of growth of output; at the other extreme, we have seen a comparatively rapid growth in employment in textiles despite slow growth in output, reflecting the smaller than average increases in productivity in the primary textile industries. These comments are not meant as a praise for some industries and criticism of others; the results are largely inherent in the nature of the production processes. In some industries it may take exceptionally good management and great efforts to make any significant gains in productivity; in other industries large productivity increases may be found despite poor management.

The larger percentage of the labour force employed in the civilian, government and community services sector is a more accurate measure of the changing importance of the government than the trend in the sector's fraction of total output, because of the statistical conventions in counting government output. Of course, both are serious under-estimates of the growing over-all importance of government activities in the community because they exclude military activities and the greatly enlarged transfer

activities of governments. The decline of the percentage of the labour force employed in the resource industries and in primary manufacturing took place in spite of the comparatively rapid increases in output of these sectors, revealing the much above-average increases in productivity in such industries. In contrast, the increase in the proportion of the labour force employed in construction was greater than the corresponding change in the distribution of output, showing the smaller than average increases in productivity in the construction industries, a trend with which we have dealt at some length earlier.

The major changes in the distribution of employment which we expect in the future are to some extent a continuation of the past trends. A further large decrease in the proportion of the labour force employed in agriculture is expected, and a further large increase in the service activities in the broadest sense, including government and community services, transport, trade and services. Smaller changes are expected in the proportion of total employment accounted for by other sectors, declines appearing likely in construction, secondary manufacturing and primary manufacturing and slight increases in the resource industries.

The expectations are based on our judgments on the prospects for output and productivity in the various sectors. For agriculture, the share of total output is expected to continue to decline sharply, while increases in productivity at somewhat higher rates than the average for the economy as a whole are expected. For services, despite the low rate of increase in productivity, we believe that Canadians will wish to take larger proportions of their incomes as services and that processes of production will make more intensive use of many kinds of services. Thus we believe that the fraction of the broad service package in total output will increase slightly; to produce this output with the smaller than average increase in productivity will require a much larger proportion of the labour force than are now employed in the "service" sectors. The slight decline expected in the percentage of the labour force employed in secondary manufacturing reflects our belief that the output of this sector will increase somewhat more than proportionately to total output but that the rate of increase of productivity in the sector will be slightly higher than the average for the economy. This in turn is partly a reflection of our belief that the higher than average productivity parts of secondary manufacturing will experience a more rapid growth in output than the lower productivity portions of the sector, and that the associated shifts in the labour force within secondary manufacturing will contribute to the over-all increases in productivity of the sector. The slight decline in the proportion of the labour force employed in primary manufacturing incorporates our judgment that this sector will not account for a larger share of total output, but that higher than average increases in productivity will continue to be experienced. The slight increase in the proportion of the labour force employed in the resource

industries is based on our expectation of high rates of increase in productivity in this sector, as the projected growth in the share of the labour force employed in the resource industries is minute compared with the expected increase in the sector's share of the national output. The slight decline expected in the proportion of the labour force employed in construction is due to our view that construction will account for a significantly smaller share of the national output; the rate of increase in productivity in the industry is likely to be somewhat below that experienced in the economy as a whole.

Despite the pioneering study in the measurement of the stock of capital which was undertaken for us, we are not able to form as firm views about the distribution of capital requirements as for labour; but a number of points of vital interest to the Canadian economy emerge. First, broadly speaking capital-output and labour-output ratios are inverses of one another. The industries of higher than average productivity are typically those of higher than average capital-intensity; for example, the resource industries and primary manufacturing. Conversely, the industries of less than average productivity are typically those of less than average capital-intensity. Those sectors which have experienced higher than average increases in productivity are usually those in which new investment per man has been higher than average; industries in which increases in productivity have been less than average are also those in which less than average increases in capital per man have taken place. The correspondence is by no means perfect, but it is not a bad generalization. Second, capital requirements are going to be very heavy in those industries which combine high rates of increase in output and high rates of increase in productivity, and are going to be small in those industries in which we find low rates of increase in output and low rates of increase in productivity. Our expectations about the combinations of growth in output and in productivity suggest that the proportion of the total capital accumulation required by the resource industries and primary manufacturing will become even larger than they have been in recent years, and that the share required by the secondary manufacturing will increase slightly. The proportions of the total capital stock required by the service industries in the broadest sense and by construction may decline slightly, and the fraction required by agriculture will probably decrease greatly. However, in absolute terms the ratio of capital to labour will tend to increase in all sectors of the economy.

Some Possible Economic Problems Associated with the Changing Structure of the Economy

Our review of the changing structure of the Canadian economy suggests a number of situations which may pose economic and social problems for Canada. Among these possibilities we include the problems of rapid structural adjustments, the incidence of externally generated business fluctuations on Canadian incomes, variations in investment expenditure in

Canada and certain features of Canada's balance of international payments. At the outset we must express our confidence that the problems of structural readjustment of the Canadian economy are not likely to be overwhelmingly difficult to handle. This is partly because the economic system has a high capacity for successful adjustment, provided that close to full-employment conditions are maintained and provided that a fairly substantial rate of over-all economic growth continues. Our confidence is partly based also on the prospect of gradual structural change. Changes and problems there will be and needs for adjustments in public policy, but we ought to be able to take them in our stride.

During the next quarter century fairly large net transfers of manpower and capital among industries and areas are likely. Very few sectors or areas will experience absolute declines in output and employment; thus the transfers will largely take the form of more rapid growth of some sectors and areas of the economy than of others. Also these changes will be gradual and will be facilitated by the normal retirement of people from the labour force and their replacement by new entrants, and by the wearing out and replacement of existing capital equipment. However, even under the most favourable circumstances relative transfers of resources involve some social problems. The density of population in some areas may diminish quite sharply, imposing additional real burdens of providing adequate schooling, medical services and transportation facilities. In other areas, particularly metropolitan urban centres, rapid increases in population impose tremendous strains in providing the additional social capital facilities in short periods of time. In the nature of things, transfers of resources often impose large burdens of cost on small segments of the community but yield gains which although proportionately small to the great mass of the people, do in the aggregate outweigh the costs of adjustment. But the uneven distribution of costs and gains will pose problems of assistance and compensation, problems which in many cases should be met by public policy.

One of the classical Canadian problems has been the sensitivity of the Canadian economy to external business fluctuations, particularly those originating in the United States, the United Kingdom and Western Europe. This sensitivity to foreign business fluctuations arises from the size and nature of Canada's international specialization and the closeness of social and financial ties between Canada and the main industrial areas of the world. While we expect a small decrease in the openness of the Canadian economy and some gradual changes in the internal structure of the economy, we do not believe that any fundamental change is likely in the sensitivity of Canadian business conditions to fluctuations in the United States and Western Europe. Thus Canada's traditional problem of having to cope with cyclical fluctuations of external origin is likely to be a continuing one in the future. We believe that fluctuations in economic activity

in industrial areas of the world will be smaller in the future than they have been during the past three decades, and thus the magnitude of Canada's problems of this origin ought also to be smaller. In a later chapter we comment on the policies which Canada may pursue for dealing with such problems as they arise.

We have commented earlier on the extraordinary boom in real investment activity which has taken place in Canada and in other countries since the end of the War. Canadians and Americans have a distinctly better stock of capital equipment now than they had at the end of the War, a stock which is larger per capita, of distinctly lower average age and higher productivity. Because of the size and quality of the existing stock, replacement of capital instruments may be somewhat limited in the next few years, and this is one of the possible causes of cyclical fluctuations in over-all economic activity. We draw attention to these possibilities primarily because they may impose disproportionate burdens of adjustment on certain segments of the Canadian economy, such as the construction industry and those manufacturing industries which produce durable capital equipment. The possibility of replacement cycles in consumer durable goods also exists though economists do not yet have very precise ideas about the causes, consequences and offsets to replacement cycles. We mention these cycles as possible problem areas, and ones for which careful continued study will be required during the next few years. Such cycles influence the need for, and nature of, government policy concerned with fluctuations in the level of economic activity, on which we comment in a later chapter.

Another area in which problems might arise, or where symptoms of economic or social difficulties might show, is in Canada's balance of international payments. The problems might be of a long-run nature such as would arise from the sustained loss of an important export market or an excessive burden of external debt; or they could be shorter-run problems, emanating from temporarily excessive rates of domestic investment or fluctuations in business activity in other countries. In recent years, many Canadians have shown some concern over Canada's international trading position. During the past three years, Canada on the average has had a deficit on current international accounts of some \$835 million per annum. The average deficit with the United States has run at about \$1,160 million per annum while there has been an average surplus on current account with the United Kingdom and with other countries of approximately \$325 million. In 1956 the total deficit on current account was about \$1,370 million while the deficit with the United States was \$1,640 million; the corresponding figures for the present year may be somewhat higher still.

These recent deficits have been exceptionally large, primarily reflecting the phenomenally high rates of private and public investment activity which have been carried on in Canada in these years. We have not encountered any serious difficulty in covering these deficits so far; they have, of course,

been met by an inflow of foreign capital, mainly from the United States, but with substantial amounts from the United Kingdom and Western Europe. Indeed to a considerable extent the current deficits are themselves an adjustment to the inflow of foreign capital, which, by stimulating or facilitating investment expenditure tends to encourage Canadian imports and discourage Canadian exports of goods and services; this current deficit is related to the discount on United States dollars in terms of Canadian currency. If the rate of inflow of foreign capital were to decline substantially, we would expect the exchange rate for the Canadian dollar to decline also. This, in turn, should tend to stimulate exports and discourage imports. Furthermore, a reduction in the rate of capital inflow would involve a reduction in the rates of real investment expenditure in Canada and some decrease in our imports of capital goods. As a result of these and other parallel influences, equilibrium should be restored, though, of course, an extremely rapid reduction in the rate of capital inflow could pose substantial short-run strains of unemployment on important segments of the Canadian economy.

As we have said, the substantial deficits in recent years have been offset by heavy capital inflows, but this situation is not entirely an unmixed blessing. We have been able to achieve phenomenal rates of investment. The exchange rate for the Canadian dollar has been very strong, so strong in fact that during 1957 it sold as high as a six per cent premium above the United States dollar. This tends to make imports abnormally high and tends to reduce Canadian exports; that is, it tends to encourage an abnormal replacement of Canadian production by imports and to curtail the incomes of certain Canadian export industries. Much of this is the necessary consequence of the exceptionally high rates of domestic investment activity in Canada, for much of the manpower and resources to carry out this investment activity must be squeezed out of other employments in Canada. However, there is the possibility of too rapid a rate of expansion, particularly of some of the resources sectors, a possibility of distortion of the even growth of the economy as a whole and temporary over-capacity of some production facilities.

Furthermore a large part of the capital inflow into Canada has gone into equity investments in Canadian subsidiaries of foreign companies. The implications of the dominant position which subsidiaries hold in certain key Canadian industries are discussed in the next chapter. We may simply note here that while we have been extremely prosperous in recent years, to some extent at least our good fortune is being paid for not in terms of exports; nor through a reduction in exchange reserves; nor by a drop in the exchange rate; nor by a shortage of capital for investment; but in the increased ownership and control of Canadian resources by residents of other countries.

Turning to the longer-run possibilities of balance of payments problems, some people may be concerned about the cost of servicing the increased amount of foreign capital which has been invested in Canada; others may be interested in the prospective size or regional distribution of our current balance on international transactions. Much of the new foreign investment which has occurred in Canada has gone into enterprises which are designed either to increase our exports or to reduce our imports. Much of it is in forms that will only have to be serviced if these ventures turn out to be profitable. For these and other reasons we do not expect the increased cost of servicing the foreign investment which has been made here in recent years to present too difficult a problem.

Does it appear likely that Canadians will experience an over-all long-run balance of payments problem in the form of a troublesome excess of imports of goods and services over exports? In the past we have been fortunate to escape unfavourable long-term structural disequilibrium in our balance of international payments. In this century we have not had a sustained "sterling problem" nor a "United States dollar problem" in anything like the way in which the sterling area has had a "dollar problem". Nor have Canadians experienced a sustained loss of export opportunities in anything like the degree faced by the Japanese after the development of artificial fibres or encountered by Chile after industrial nations perfected the synthetic fixation of atmospheric nitrogen. Since 1900 various Canadian exports have experienced setbacks, but we have been fortunate to have these offset almost simultaneously by new export opportunities or by the development of replacements for imports. A notable exception was the Great Depression of the 1930's, but that piece of economic folly reflected much more than the problems of structural adjustment.

As to the future, our studies suggest that imports like exports of goods and services are expected to continue to decline as a proportion of the Gross National Expenditure. Any forecast of the balance between current sales and purchases of goods and services from foreigners must be treated with great caution, because the balance is relatively small and because small proportionate differences in the forecasts of either exports or imports make a large proportionate difference to the balance between them. It does appear likely, however, that the relative size of Canada's excess of imports over exports to the Gross National Expenditure and thus the net size of the capital inflows into Canada will gradually diminish,* though fairly wide fluctuations from one year to another are to be expected. This decline, together with the breadth of the base of present-day Canadian economic activity, the close substitution possibilities between imports and Canadian production and the continued confidence of foreign investors in Canada, suggest that Canadians are not likely to face a *major* unfavourable long-run structural problem of adjusting their over-all balance of payments.

* Compared with the average level between 1952 and 1955.

Apart from the size of the total deficit on current account, there is its geographical imbalance. The changes which have occurred in the pattern of our trade since the late 1920's, but particularly during the post-war period, have reduced the relative, if not the absolute, magnitude of the imbalance in our bilateral accounts. But even so there is a question as to whether Canada can continue indefinitely to earn substantial surpluses in her dealings with countries overseas for use in settling deficits with the United States. A sound and complete system of multilateral trade based on currency convertibility and non-discrimination can be established and maintained if there is equilibrium in the over-all trade and payments of each of the major trading nations of the world. In such circumstances there would be no cause for concern about Canada's balance with individual countries or regions. But such conditions do not prevail today. Canada may intermittently or persistently lose attractive trading opportunities because some countries feel that they must limit imports from dollar areas. In view of this we think a better international balancing in the pattern of our trade would be desirable if it could be achieved without adding materially to costs.

We have mentioned the very extensive development and expansion of the resource industries in recent years, which should result in a substantial increase in the future in the volume of our exports to the United States, especially of industrial raw materials. This should have the effect of reducing the present imbalance in our trade with that country. If we could widen our access to United States markets obviously the imbalance would be narrowed further. The only other course for us to take would be to reduce our imports from the United States and instead either to increase the share of imports from overseas countries or to look to domestic sources for a greater proportion of our requirements.

In many lines imports from the United States enjoy real advantages in the Canadian market compared with imports from other countries. By and large, Canadian industry is not only established on the North American model but, of equal importance, we are accustomed to North American standards of service, delivery and salesmanship. This quite understandably is particularly true of those important parts of Canadian industry which are controlled by United States parent companies. Canadians are also accustomed to North American styles and are susceptible to United States advertising and merchandising techniques so that there is a strong preference for some United States consumer goods. In addition to these disadvantages, overseas suppliers of our requirements find that business is highly competitive in Canada in most lines, more so than in other countries and the total potential market here is relatively small. Nevertheless and despite the considerable difficulties which have been cited, there should be room in the Canadian market for some increase in imports from the United Kingdom, Western Europe and other countries. Since the end of

the War, efforts have been made not only by the Government but also by private bodies in Canada to encourage imports from these areas; and such efforts deserve support. But their success must ultimately depend on whether goods attractive to Canadian purchasers can be made available at prices and under conditions which will be competitive.

Elsewhere in this report, some suggestions are presented for strengthening the competitive position of Canadian secondary manufacturing. If these suggestions are adopted we believe these manufacturing industries would be in a better position to compete successfully in the domestic market with their United States competitors. This, in turn, should tend to reduce imports from that source and hence to improve our present unfavourable balance on current account with the United States.

Finally, we would note that Canada may face short-run balance-of-payments problems in the future, since Canadian exports of goods and services vary with foreign business conditions. Decreases in exports decrease Canadian incomes and thus imports; balance-of-payments deficits arise if the imports are not curtailed sufficiently. Canadians may follow an aggressive policy of stabilization of income, employment and prices in the face of these externally generated fluctuations; however, if the Canadian policy of stabilization is much more vigorous than that of our major trading partners, it would tend to produce balance-of-payments deficits in periods of declining exports. This is but one more example of the way in which the structure of the Canadian economy can raise economic problems and imposes some limitations on Canadian economic policy.

DOMESTIC SAVING AND FOREIGN INVESTMENT IN CANADA

IN THE LAST CHAPTER, in discussing the division of Gross National Expenditure, we reviewed briefly the record of capital formation in Canada and offered our forecast of the annual rate of investment in capital goods that may be expected in the period around 1980. In this chapter we shall first remark on the ways in which this capital investment has been financed in the past and may be financed in the future. We shall make one or two suggestions concerning the channeling of saving into investment through the domestic capital market. Most of this chapter, however, will be devoted to a discussion of foreign investment in Canada.

Perhaps the most striking fact in the record of the distribution of saving is the preponderant role of business saving. Undistributed corporation profits and allowances for depreciation and depletion comprised over half (54 per cent, to be precise) of total saving (or investment) in Canada in the years 1953 to 1955. In this same period, personal saving and government saving* each accounted for about one-fifth of the total while the inflow of capital associated with the deficit in the current account of the balance of payments amounted to nearly one-tenth. These proportions were about the same in the 1927 to 1929 period; the only differences are that business saving was then a slightly larger and government saving a slightly smaller proportion of the total. Personal saving and the current account deficit were almost precisely the same proportions of total saving then as in the later years.

Some detail on the sources of saving is shown in Table 18.1 entitled The Division of Saving. It will be noted that personal saving has, since the mid-twenties, been a remarkably stable proportion of total saving. Government saving, reflecting budget surpluses and non-defence investment expenditures has varied rather more in relation to total saving. Business saving and the balance on the international current account have however, been the most volatile sources of saving. Canadians had a surplus in the current account of the balance of payments in 18 of the 30 years ending with 1955.

* We define government saving as government surplus as reported in the National Accounts plus government non-defence investment expenditures.

Table 18.1

THE DIVISION OF SAVING
AVERAGES FOR SELECTED YEARS 1926-55; FORECASTS FOR 1979-81

	Billions of current dollars					Billions of 1955 dollars		
						1979-81		
	1927-29	1937-39	1947-49	1950-52	1953-55	Low	Middle	High
Personal saving.....	.30	.21	.81	1.19	1.29	2.8	3.0	3.2
Undistributed corporation profits.....	.23	.20	.67	.74	.76	2.2	2.5	2.8
Depreciation allowances and similar business costs.....	.66	.59	1.28	1.89	2.65	8.4	9.1	9.8
Net bad debt losses of corporations.....	-.01	-.02	.07	.01	-.02			
Total gross business saving.....	.87	.76	1.88	2.62	3.39	10.6	11.6	12.6
Government receipts less expenditures.....	.04	-.07	.65	.66	.09	-.1	-.2	-.3
Government non-defence investment expenditure.....	.16	.17	.50	.80	1.07	2.7	2.9	3.1
Total government saving.....	.21	.17	1.15	1.46	1.17	2.6	2.7	2.8
Imports less exports of goods and services.....	.12	.13	-.20	.23	.51	.5	1.0	1.5
Error of estimate.....	-.02	-.03	.02	.01	-.04			
Total saving.....	1.47	.93	3.66	5.51	6.32	16.5	18.3	20.1
Per cent								
Personal saving.....	20.2	22.2	22.2	21.5	20.4	16.9	16.4	15.9
Undistributed corporation profits.....	15.7	21.6	18.4	13.5	12.0	13.3	13.7	13.9
Depreciation allowances and similar business costs.....	44.6	63.5	34.9	34.3	42.0	50.9	49.7	48.7
Net bad debt losses of corporations.....	-1.1	-3.0	-1.9	.2	-.3			
Total gross business saving.....	59.2	82.1	51.4	47.6	53.7	64.2	63.4	62.7
Government receipts less expenditures.....	3.2	-8.1	17.9	12.0	1.5	-.6	-1.1	-1.5
Government non-defence investment expenditure.....	11.0	18.3	13.5	14.5	17.0	16.4	15.9	15.4
Total government saving.....	14.2	10.2	31.4	26.5	18.5	15.8	14.8	13.9
Imports less exports of goods and services.....	8.1	-14.6	-5.6	4.1	8.2	3.1	5.5	7.5
Error of estimate.....	-1.7	.1	.6	.3	-.7			

Note: Detail does not always add to total because of rounding.

SOURCE: Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy, 1957*, a study for the Commission, Chap. 7, Table 7.5, p. 323

As compared with the 1953-55 period, we anticipate that business saving may be a substantially larger proportion of all saving and that each of the other three main sources of saving may account for somewhat smaller proportions. The major change in business saving is expected through increases in depreciation allowances rather than undistributed profits. This increased weight of depreciation allowances is expected to arise from the greater importance of machinery and equipment relative to structures in the stock of capital, since depreciation reserves against machinery and equipment are likely to be built up more rapidly than those against structures.

Government saving is expected to be a slightly smaller proportion of total saving in 1980 than in the years 1953-55. This is mainly because government capital expenditures, as discussed in Chapter 15 and as elaborated in the study *Housing and Social Capital*, while expected to increase substantially, are not expected to increase as rapidly as Gross National Expenditure. Government non-capital expenditures on goods and services for civilian use on the other hand, are expected to increase much more rapidly than Gross National Expenditure and hence, making reasonable assumptions concerning budgetary practices, it appears likely that the three levels of government will collectively run a small deficit expressed in national accounting terms.

Personal saving is that part of personal income left after paying income taxes and after paying for purchases of consumers' goods and services. Personal income after taxes we expect to be about the same percentage of Gross National Product in 1980 as in 1953-55; the claims of business against Gross National Product represented by business saving will be a higher percentage, but the claims of government represented by government saving and government spending on non-capital goods will be a lower percentage. However, though we expect that in 1980 the ratio of personal saving to income after taxes will be at about its long-run average, this implies that it will be below its value in 1953-55. Personal saving will therefore be a somewhat smaller proportion of Gross National Expenditure and of total saving.

The difference between exports and imports is relatively small and correspondingly difficult to forecast. A very small proportionate difference in the forecast of either exports or imports makes a very significant proportionate difference in the forecast of the balance of imports over exports. It is likely that a generation from now the current account of the balance of payments will in some years show a deficit and in some years a surplus; the forecast shown above should be interpreted as implying that a relatively small deficit may be more common than a surplus, and that such deficits will be a smaller proportion of total saving than deficits on the current account are today. Of course foreign contributions to the total of saving arise also from the retained earnings and depre-

ciation allowances of foreign-owned concerns operating in Canada and these are offset to some extent by similar investments of Canadian-owned concerns abroad. We shall refer to these matters more fully later in this chapter.

Apart from the funds that are re-invested in the businesses in which they are earned, saving flows from savers to investors through the capital market. The efficient functioning of the capital market is therefore of vital importance to the performance and in particular to the growth of the economy. Recognizing this, we arranged for a study of the capital market in Canada to be prepared. This study, which will be entitled *Financing of Economic Activity in Canada*, will contain new statistics on financial flows in Canada for the years 1946 to 1954 which are a logical supplement to the data in the National Accounts already published by the Dominion Bureau of Statistics. The National Accounts show for each of four "sectors" of the economy (persons, business, government and the "rest of the world"), the balance of saving relative to investment. This balance for any sector, if positive, represents the amount of that sector's current income that has been used for acquiring financial assets or existing real assets from other sectors. In the capital market study, the National Transactions Accounts show these balances for a larger number of sectors and, for each, show separately its annual net increases in financial assets and liabilities of which several classes are distinguished.*

It is not to be anticipated that serious, fundamental deficiencies in our financial system will be uncovered in the study, *Financing of Economic Activity in Canada*. As we have shown, the fact is that the Canadian economy in the last decade has been able to produce and distribute an immense and rapidly increasing flow of goods and services. This could not have been accomplished if the financial machinery were not working well. If there are features of the capital market which are not wholly satisfactory they are decidedly of the second order of importance. But we have some apprehensions. We have mentioned one in relation to municipal finance in Chapter 15 and in Appendix I. Later in this chapter we shall mention some that are related to foreign investment. Before doing so it seems appropriate to repeat something that we said in our Preliminary Report relative to the working of the domestic capital market.

There does appear to be an inadequate supply of Canadian capital which can be readily mobilized for large-scale projects requiring a concentration of equity capital on which no immediate return may be expected. In this connection it was suggested to us by some responsible witnesses that the legislation restricting the kind of investments which may be made

* The ways in which economic activity is financed in Canada will be reviewed and assessed on the basis of these data and much of the information in the study we have mentioned. However, the study is not expected to be completed for some months and we cannot therefore draw upon the analysis and appraisal of the capital market which it will contain to the extent we would have wished. This part of our report in consequence is more restricted than we had planned originally.

by life insurance companies and by trustees should be changed to allow more funds from those sources to be made available for investment in equities. Other equally responsible people expressed the view that trustees and institutions in a trustee position must pursue cautious policies in their investment programmes and that changes in existing legislation are not needed. Quite obviously it is the direct responsibility of trustees and of the managements of life insurance companies to decide how their funds should be invested and it may be that the policies of these companies are more significant than legislation in determining how much of their savings is invested in equities. We believe, however, that some greater degree of flexibility in the legislation governing investments by trustees and by life insurance companies would be desirable in order to allow trustees and the managements of life insurance companies more freedom in exercising their judgment in the field of investments generally. In particular, we propose that:

- (a) The restrictions in the various provincial trustee acts upon the powers of trustees to invest in equities should be re-examined and modified.
- (b) The limitation of 3 per cent on investments of life insurance companies which come under the so-called basket clause should be raised.
- (c) The 15 per cent limitation on investments of life insurance companies in common stocks might also be raised.
- (d) The regulation respecting the valuation of common stock investments by life insurance companies should be changed to provide that any market depreciation below cost or book value may be amortized over a period of years as compared with the present requirements whereby any decline in market value of securities must be written off each year as it occurs.

But even if changes along the above lines were made, it would not be possible for trustees and life insurance companies, even if they wished to do so, to provide all or even a substantial proportion of the capital which will be needed for equity financing in the years to come. If, therefore, Canadians are to invest in new large-scale ventures, it may be necessary to devise new mechanisms for concentrating available venture capital and for spreading the risks more widely. (Indeed the whole question of the rate of savings in Canada should be given careful study in view of the large potential demands for capital that lie ahead.) It seems clear that in addition a continued inflow of foreign capital will be needed for such purposes, particularly in periods of rapid expansion.

A fuller knowledge of the strengths and weaknesses of the Canadian capital market must await completion of the study on *Financing of Economic Activity in Canada*. However, in Chapter 20 we shall make observations on the limitations, some ineradicable others not, of the capital market as the

place in which monetary controls are initiated and through which they must operate. The remainder of this chapter will be devoted to a discussion of foreign investment in Canada.

Canada has never been able to provide enough capital from its own resources to finance the growth and development of the country. Indeed, one of the first and most important problems facing Sir John A. Macdonald and his colleagues was the raising of funds abroad to build the Canadian Pacific Railway. The growth of the country, at any stage in its history, would have been much slower without large supplies of capital from foreign countries, principally from the United Kingdom and the United States. All our periods of great economic activity and expansion in peacetime have been characterized by heavy inflows of capital from abroad; in periods of economic stagnation, we have been importing very little capital. Canada has always been a debtor nation. And it is therefore appropriate that the Commission should have spent some time in considering the question of foreign investment in Canada including its implications both in economic and political terms.

In the late nineteenth century, most of the foreign investment in this country came from the United Kingdom. Most of it was concentrated in the railways, in financing the requirements of government at all levels and in the construction of basic utilities. Also, most of it was in the form of debt rather than in equities.* In these respects, foreign investment in Canada prior to, say, 1914, was very similar to foreign investment in the United States during the same period. In both countries, the majority of this investment was paid back during and after the First World War. (In the United States, the repayment process started prior to 1914; in Canada it began somewhat later.) In more recent years, however, the patterns have changed remarkably with the growth and spread of Canadian subsidiaries of American and other foreign companies. In the 1920's with the development of the newsprint and mining industries, foreign capital began to be invested in Canada in the form of equities rather than debt. It was during the 1920's moreover, that the most important form of investment began to be direct investment in Canadian industry** mostly in Canadian subsidiary companies of foreign-owned

* Debt is a fixed monetary claim such as represented by bonds or mortgages while equities are variable proprietary claims such as those arising from the ownership of stocks and shares.

** Direct investment refers to the investment in or retention of earnings by concerns which are effectively controlled by non-residents. These include all concerns in Canada which are known to have 50 per cent or more of their voting stock held in one country outside Canada. In addition, in a few instances, concerns are included where it is known that effective control is held by a parent firm with less than 50 per cent of the stock. In effect this category includes all known cases of unincorporated branches of foreign companies in Canada and all wholly-owned subsidiaries, together with a number of concerns with a parent company outside of Canada which holds less than all of the capital stock. In addition, there is a relatively small number of Canadian companies included in cases where more than one-half of their capital stock is owned in a single country outside of Canada where there is no parent concern. These exceptional cases are confined to instances where control is believed to rest with non-residents.

concerns. Also during this period, the relative importance of United Kingdom investment declined rapidly while that of American investment increased. These trends have become even more pronounced since the end of the last War as will be seen from the following table:

Table 18. 2

FOREIGN INVESTMENT IN CANADA 1926 TO 1955

	1926		1945		1955		Percentage increase	
	Billions	%	Billions	%	Billions	%	1926 to 1945	1945 to 1955
							%	%
Foreign long-term capital invested in Canada:								
United Kingdom..	2.64	44	1.75	25	2.35	18	—50	34
United States.....	3.19	53	4.99	70	10.29	76	56	106
Others.....	.17	3	.35	5	.83	6	106	137
Total.....	6.00	100%	7.09	100%	13.47	100%	18	90
Foreign direct investment in Canada:								
United States.....	1.4	78	2.3	85	6.5	84	64	182
Others.....	.4	22	.4	15	1.2	16	—	20
Total.....	1.8	100%	2.7	100%	7.7	100%	50	185
Type of foreign investment in Canada:								
Debt.....	3.4	57	3.3	46	4.0	30	— 3	21
Equity.....	2.6	43	3.8	54	9.5	70	46	150
Total.....	6.0	100%	7.1	100%	13.5	100%	18	90

SOURCE: Based on Irving Brecher and S. S. Reisman, *Canada—United States Economic Relations*, 1957, a study for the Commission, Chap. 6, Table 19, p. 92.

In the ten years since the War, the total amount of United States investment in Canada has more than doubled. The increase has been very largely in the form of direct investment and is represented in the main by equity holdings. It should be noted furthermore that the figures shown in the table are based upon the book value of the investments. If it were possible to establish the real value or the market value of United States direct investments in Canada, the increase since the War would almost certainly be many times greater than the amount shown in the table for 1955. If, in addition, the very substantial increases which have taken place in the last two years were taken into account, the total of United States investment in Canada at the present time and the increase in the total since the end of the War would be even greater still.

During the same period Canada's foreign assets, including long-term investments in other countries, have also been increasing. Such assets

amounted to \$6.9 billion in 1955, nearly double the corresponding figure in 1945. A substantial part of the total, however, is in the form of government loans and advances and government holdings of gold and foreign exchange. Canada's direct investments in other countries amounted to \$1.6 billion at the end of 1954 but this includes investments by Canadian companies which themselves are controlled by foreigners. More complete statistics of Canada's investments in other countries and of foreign investment in Canada are contained in the study, *Canada-United States Economic Relations*.

There are several ways of looking at the contribution made by non-residents to the financing of investment in Canada. One approach is to show the extent to which Canada has drawn on the resources of other countries, on balance, and to compare this with total investment in Canada. This "net use of foreign resources" may be measured by the deficit in Canada's international transactions, plus undistributed profits of corporations controlled by non-residents minus undistributed profits of Canadian-controlled enterprises abroad. Another approach is to show the "gross use of foreign financial resources" and to compare this with total investment in Canada. The "gross use of foreign financial resources" may be defined as new capital of foreign origin supplied to enterprises and governments in Canada.* In both of these approaches the use of foreign resources and investment in Canada may be measured with or without taking depreciation allowances into account. For our immediate purpose we shall exclude depreciation allowances from the estimates.

According to estimates published by the Dominion Bureau of Statistics, the net use of foreign resources as a percentage of total capital investment in Canada was about 25 per cent in the five years 1926 to 1930. Similar estimates are not available for the years 1931 to 1945. For the four years 1946 to 1949 there was a net capital outflow mainly due to large government loans to the United Kingdom and other countries for reconstruction after the War. The net use of foreign resources as a percentage of total capital investment in Canada in the five years 1950 to 1954 was 13 per cent. A tentative estimate of the corresponding percentage for 1956 is about 33 1/3 per cent. The corresponding estimates of the Dominion Bureau of Statistics of the percentage of the gross use of foreign resources to total capital investment were about 50 per cent in the five years 1926 to 1930: 21 per cent for the four years 1946 to 1949; 33 per cent for the seven years 1950 to 1956, with the percentage for 1956 being tentatively estimated at about 40 per cent.

* More precisely, this measure covers the inflow of long-term foreign capital plus the non-resident share of undistributed profits of foreign-controlled enterprises in Canada. Among the movements disregarded are the foreign funds supplied to Canadian capital markets as a result of security trading, and also resident and non-resident capital outflows from Canada. ("Gross use of foreign financial resources", as used here, is equivalent to the measure "direct foreign financing" used by D.B.S.)

These few statistics and percentages will be sufficient to show the very important part which foreign capital has played in Canada's most recent periods of great economic expansion. A very considerable part of this foreign investment is in the form of direct investment in equities, whereas a much larger proportion of domestic investment is in such things as houses and highways and farms and railroads which are not likely to appreciate in value to the same extent. Furthermore, there is a snowballing effect about investments in equities. If a substantial part of earnings are retained and re-invested, the original investment tends to increase at a relatively fast rate.

A big part of the foreign investment in Canada is concentrated in subsidiary companies controlled by non-residents in the resource and manufacturing industries. These are the industries which have been growing at a fast rate and which may be expected to continue to grow at a faster rate than the economy as a whole. It follows that the value and importance of the foreign investments which have been made in these industries should also continue to increase at a relatively fast rate, quite apart from any new inflows of foreign capital. Well over half of the increase in United States direct investments in Canada since the War is accounted for by the expansion of companies which were controlled by United States interests at the beginning of the period, and most of this increase was due to the retention of earnings by the companies in question.¹ The retention and reinvestment of earnings, plus amounts set aside for depreciation and depletion, ensures the rapid growth of existing companies and particularly the larger ones which are well entrenched, well financed and which hold dominant positions in their respective industries. In many of Canada's fastest growing industries the principal companies, the ones which hold the dominating positions, are controlled by non-residents. This concentration in certain key industries and in large companies wielding extensive influence is the most important factor to be considered in connection with foreign investment in Canada.

A distinction should be noted between non-resident ownership and non-resident control. In some cases there may be a wide diffusion of ownership and no one group may hold a controlling position. In other cases one group or one parent company may control the operations of a Canadian subsidiary company through ownership of a substantial percentage of its shares. It follows that the percentage of non-resident control in certain companies and of certain industries may in some cases be higher than the percentage of non-resident ownership of such companies and in such industries.² The tendency for a few large companies to predominate in many industries is much the same in Canada as it is in the United States and the growth of large companies in Canada is often linked with the growth of their parent companies in the United States. In this way control by non-residents including United States parent companies

of a relatively few large Canadian companies may carry with it a dominating influence over the operations of a whole industry.

The more important Canadian industries in which a relatively few companies controlled by non-residents have a dominating influence include the oil and gas industry, some sections of the mining, smelting and refining industry (for example aluminum, iron ore and asbestos) some sections of the chemical industry and at least three of the more important secondary manufacturing industries, namely automobiles, electrical apparatus and supplies and rubber products. This list includes several of the industries which have been expanding and developing most rapidly in recent years and some of the industries which we believe have the greatest prospects for continued growth over the next quarter century. Three examples of spectacular developments during the last few years, each of which have been financed very largely with American capital are the tremendous program of oil and gas development in Western Canada, the Kitimat aluminum project in British Columbia and the extraction of iron ore in Labrador and New Quebec. As we said in earlier chapters, we predict considerable further expansion in each of these industries over the next twenty-five years.

In the pulp and paper industry, ownership and control is more widely diffused. The nine largest companies account for 55 per cent to 60 per cent of the total production of this industry and of these nine, three are controlled by non-residents. This is only part of the picture, however, because in addition many of the medium-sized companies in the industry are controlled by non-residents. At the beginning of 1954, 55 per cent of the total capital employed in the industry was controlled by non-residents and this percentage may have risen somewhat since then through the purchase of a number of formerly Canadian-owned companies by foreign interests. There are, of course, many other industries of great importance in which the amount and influence of foreign capital is of much less significance. These include the primary iron and steel, food processing, textiles, transportation, public utilities and construction industries. The extent of foreign investment in agriculture is negligible. More than four-fifths of the capital invested in the chartered banks is Canadian. In other financial institutions such as the insurance companies and the loan and finance companies, the extent of foreign ownership and control is considerable but not dominant. Detailed statistics of non-resident ownership and of non-resident control in various industries are set forth in *Canada-United States Economic Relations*. "The extent of non-resident control has increased with the growth of Canadian industry. No other nation as highly industrialized as Canada has such a large proportion of industry controlled by non-resident concerns."³

This in rough outline is the statistical picture of foreign investments in Canada which we propose to examine and discuss. Before doing so, it may be helpful to review some of the reasons why foreign capital has been attracted to Canada and to emphasize the great benefits which we have derived from this. Canada has always welcomed the investment of foreign capital because without it our rate of growth would necessarily have been much slower. One of the principal determinants of growth of the Canadian economy has been the development of our resource industries including forest products, mining, smelting and refining, oil and gas and hydro-electric power. These industries have all required larger amounts of capital than Canadians have been able to provide themselves. Even today when Canadians are enjoying the highest standard of living in their history and when the volume of savings is also very high, Canada just does not have enough large pools of capital available to finance large projects on which, in some cases, no return may be expected for some considerable time.

But the mere fact that Canada has been willing to borrow abroad and has always welcomed the investment of foreign capital here would not by itself have been enough to attract an inflow of capital to this country. Nor would the availability of rich and plentiful resources and opportunities for growth. Fortunately in addition the "investment climate" in Canada has been favourable. Canada has had a long tradition of freedom for the flow of capital and income across its borders. Canada has also had a long history of orderly and responsible government. Moreover, a hard-working people with a strong desire for material advancement, a skilled labour force, a well developed educational system, adequate transportation and other social-capital facilities, reasonably stable economic and social conditions and positive encouragement by all levels of government have all helped to make this country an attractive outlet for private foreign capital. This has been stimulated and encouraged by the similarity in political institutions, language and social customs with the main capital exporting countries of the past century, namely the United Kingdom and the United States; as well as Canada's proximity to the United States which has been the predominant source of foreign capital in more recent times. Furthermore there is, of course, the basic fact that opportunities for profit are great in Canada and the risks involved are relatively small.

As we have intimated, Canada still does not have the kinds of large capital pools concentrated in the hands of a single or a very few enterprises which are needed for many investment projects undertaken in a modern industrial state. Furthermore, and of at least equal importance, many Canadian investment undertakings require not only substantial outlays of capital but also an advanced technology and access to research facilities, specialized entrepreneurial and management skills; assured

markets for a major part of the output; and the efficiency and the reduction in the element of risk which is associated with large vertically integrated enterprises. Non-residents, and especially Americans in more recent years, have been able to provide this combination of money, technology, skills and markets, without which the Canadian economy would have been developed much more slowly and less efficiently. In some few cases Canadian capital and Canadian entrepreneurs have been associated with Americans in such undertakings. An example of this is the very considerable development of the Iron Ore Company of Canada in the Quebec-Labrador area, which the Commission stopped off to see on its way from Goose Bay, Labrador to Sept-Iles, Que., in the summer of 1956. This project, while spear-headed by Canadians, was made possible only because of the inclusion in the venture of a group of American steel companies who contributed not only a large part of the capital and technical knowledge which was needed but also provided an assured market for the ore to be produced.

But this example of a development project in which both Canadians and Americans participated is something of an exception. More often such projects are financed entirely by non-residents who control the enterprise completely. The explanation which is often given is that Canadians as investors are too timid and are unwilling to undertake large projects which require a great deal of capital. It is quite true, as we have said, that Canadians have had insufficient capital to undertake alone many of the larger projects which have been developed in recent years. But this does not mean they have been unwilling to participate in such ventures. In fact quite the opposite is true. Furthermore, it should be stressed that risk-taking by investors is a relative concept. Investment undertakings which would entail a considerable element of risk for Canadians are often a routine operation for large non-resident corporations. The Canadian venture, large though it may be by Canadian standards, is typically only a small part of the non-residents' global operations. Furthermore, as we have noted, the non-resident corporation may be expected to have the ancillary facilities including technology, skills and markets, in the abundant quantities which are required to reduce the risks involved to more or less negligible proportions.

There are other and more positive factors which encourage Americans and Europeans to invest their capital in Canada in addition to those which have been mentioned. The United States economy has developed to the point where it is generating large amounts of savings and there are many Americans, including those responsible for managing large American corporations, who are looking outside the borders of the United States for investment opportunities which promise a higher return on capital than could be obtained if it were employed at home. Many European investors may believe that Canada is a relatively safer place to invest than their own countries.

The motive for foreign direct investment in Canadian resource industries has been a twofold one, partly the opportunity for profits and partly, and in some cases more importantly, the desire to develop and guarantee sources of supply of materials in which the United States and world needs are, or promise to be, greater than can be supplied from existing sources. In certain cases the United States Government has encouraged direct investment in Canada in connection with its programme of stockpiling strategic metals. In most instances comparative costs of production have been a principal consideration in deciding to develop resources in Canada rather than elsewhere. In others Canada has been selected in preference to cheaper alternative sources because of the more favourable "investment climate" here and because of our proximity to the United States.

The motive for direct investment by non-residents in Canadian secondary manufacturing industries has been to expand the parent companies' operations into the Canadian market in the most desirable way. There are a number of reasons in the case of manufactured goods why it is preferable for a foreign parent corporation to establish a Canadian subsidiary rather than to supply the Canadian market through exports. The Canadian tariff has been an important factor historically, and in some periods the dominant factor, in encouraging foreign companies to locate in Canada. Some years ago the desire to take advantage of preferential access to the markets of the Commonwealth was an important factor in the location or expansion of foreign-owned subsidiary companies in Canada. In this way the "Empire content" requirements of the commercial and tariff policies of Commonwealth countries could be met. In the post-war period extensive dollar import restrictions imposed by Commonwealth countries have reduced very considerably this advantage which was formerly enjoyed by Canadian concerns. In this respect tariff considerations are now of less importance in attracting foreign manufacturers to establish subsidiaries in Canada. However, and despite the reduction in the level of protection since the War, the Canadian tariff is still important in encouraging American and other foreign companies to supply the Canadian market from plants in Canada rather than from larger and often more economic plants in the United States. Moreover, in some cases the structure of the tariff influences the extent and the nature of the manufacturing operations that are carried on in this country by Canadian subsidiaries of foreign firms.

Taxation considerations, not only in Canada but in the United States as well, have also played a part in helping to attract foreign investment to Canada. Probably the most important of these have been special United States income tax concessions designed to encourage Americans to explore for gas and oil, not only in the United States but in other countries of the world as well. These have given many Americans a material incentive to come to Canada and explore here for oil and gas.

Canadian tax laws which give each new mine a three year period of exemption from taxation, and in addition provide generous depreciation and depletion allowances, have helped encourage American (and other) investment in the mining industry. The absence of a capital gains tax in Canada has been a factor of great importance. Still another, but one that is less important, is the fact that Canadian corporation income tax rates have been lower than those prevailing in the United States, especially during the Korean War, when there was an excess profits tax in the United States. Canadian succession duties have also been a factor, and a number of family-owned companies have been sold to foreign concerns in order to obtain the funds with which to pay such levies.

The comparison is often made between Canada at this stage of her development with the United States of, let us say, 50 years ago and the assumption made that the Canadian economy will, like the American, mature to the point where it could supply all its own capital requirements. To a degree, this comparison is a valid one and we would certainly predict that Canada will be able to meet an increasing proportion of her own capital requirements in the years to come. We should point out, however, that over the last 50 years, income tax and succession duty rates have been rising. In former times in the United States it was relatively easier for private sources of investment funds to be accumulated than it is today in Canada when income tax and succession duty rates are high. Although the ever-widening sphere of public investment has partly compensated for the diminishing ability to accumulate large personal savings, private funds will continue to be of importance in financing business activities and their relative scarcity in this country will continue to encourage investment from abroad. And quite apart from new capital inflows is the more or less automatic growth of existing foreign investments in Canadian subsidiaries through the retention and reinvestment of earnings. Moreover, comparisons with the United States of, say, 50 years ago often overlook the fact that most of the foreign investment in that country was in the form of bonds which did not automatically increase and appreciate in value and which were subject to repatriation. The same conditions do not apply to foreign direct investment in Canada today.

Finally, in recent years the flow of foreign capital into Canada seems to have had a snowballing effect. Each new development undertaken creates new investment opportunities. Canada's economy since 1945 has been expanding at a rapid rate and faster than in the United States. Much of this foreign capital flowing to Canada today, including much of it that is being furnished by Americans, is coming here to take advantage of this phenomenal rate of growth and of the great opportunities for further expansion and development in the years ahead.

These, then, are some of the very real and substantial reasons why foreign capital is being invested in Canada in such considerable amounts

and in such important ways. The considerations and the benefits which non-residents obtain by investing their capital profitably in Canada are obvious. The advantages of such investment to Canadians are equally clear; the search for profits through direct investments by foreign concerns has directly influenced the rate of economic growth and industrial diversification in Canada and the standard of living of Canadians. The development of our resources, of facilities for processing them and of Canadian manufacturing industries has been stimulated by the activities of non-resident corporations in their energetic search for supplies and their pursuit of markets. Without these contacts with foreign corporations much of this development would have taken place more slowly, if at all, and at higher cost.

Connections with a parent or affiliated company in the United States or abroad often mean advantages which could not be duplicated by a purely Canadian enterprise or could be duplicated only at considerably greater cost. Availability of capital is important but so too, as we have said, are technology, research, product development, technical and managerial personnel, training facilities, access to markets, access to sources of supplies and accumulated experience over the whole range of business activity. The point about access to markets bears constant repetition and continued emphasis. Most of the output of many of Canada's basic industries cannot be consumed at home and must be exported. In such circumstances the assured market which foreign parent companies can often provide to their Canadian subsidiaries may be imperative to offset the heavy risks which otherwise would be inherent in the large-scale capital investment required to develop these industries.

The benefits of foreign investment that we have mentioned are very real and tangible. It is more difficult to state in similarly precise terms what the dangers are in the present situation and what conflicts might occur between the interests of Canadians and the interests of the foreign owners of wholly-owned subsidiaries of foreign companies operating in Canada. In the course of the Commission's hearings, concern was expressed over the extent to which our productive resources are controlled by non-residents, mostly Americans. Many Canadians are worried about such a large degree of economic decision-making being in the hands of non-residents or in the hands of Canadian companies controlled by non-residents. This concern has arisen because of the concentration of foreign ownership in certain industries, because of the fact that most of it is centred in one country, the United States, and because most of it is in the form of equities which, in the ordinary course of events, are never likely to be repatriated. Some people think it is foolish to worry too much about the possible dangers of foreign investment in this country. However, the contrary opinions on this subject which we have mentioned do in fact exist and if a period of political or economic instability should occur, they

might develop into demands for restrictive or discriminatory action of an extreme kind, the consequences of which would be unfortunate for all concerned.

At the root of Canadian concern about foreign investment is undoubtedly a basic, traditional sense of insecurity vis-a-vis our friendly, albeit our much larger and more powerful neighbour, the United States. There is concern that as the position of American capital in the dynamic resource and manufacturing sectors becomes ever more dominant, our economy will inevitably become more and more integrated with that of the United States. Behind this is the fear that continuing integration might lead to economic domination by the United States and eventually to the loss of our political independence. This fear of domination by the United States affects to some extent the political climate of life in Canada today. Therefore it is a factor which has some bearing upon "the probable economic development of Canada and the problems to which such development appears likely to give rise".

Undoubtedly there could be circumstances where the best interests of Canada might not be exactly the same as the best interests of the shareholders of a foreign parent company with subsidiaries in Canada and also perhaps throughout the world. For example, in the oil industry the same large international companies, or their affiliates and subsidiaries, which broadly speaking dominate the producing, refining and marketing sections of the Canadian industry, are the principal suppliers of crude oil to the large market centred in Montreal, and are important suppliers in most areas of the United States. The immediate and continuing interest of the Canadian subsidiaries of these companies, and indeed of Canada, is to find increasing markets for Canadian oil in the United States, or, failing that, perhaps in the Montreal area. Without growing markets a large part of the oil being discovered in Western Canada would have to be "shut in" perhaps for some considerable period. The importance and the immediacy of this problem of markets for the oil industry in Canada is clear enough to Canadians. Quite understandably, it may appear somewhat less important and less immediate to those in other countries who control the situation and who have world-wide interests to consider. In other industries, in mining or forest products, for example, the interests of the Canadian subsidiary and of the foreign parent may not always be the same in considering possible expansion of operations. Often, alternative claims for expansion in other countries must also be considered by the management of the parent company before a decision is arrived at.

Again, conflicts of interest might arise in the setting of prices on shipments between Canadian subsidiaries and their parent companies. For example, where Canadian subsidiaries supply raw materials to the parent company, it is possible that the price they charge might be too low. Alternatively, Canadian subsidiaries might be required to pay too high a price

for materials, equipment and other goods purchased from their foreign parent companies or too high charges for administration, research and other services. The officials of both divisions of the Department of National Revenue attempt to ensure that these things do not happen and that the Canadian treasury does not lose revenue through inappropriate valuations of subsidiary-parent company transactions. But it is not always easy to establish fair prices in such inter-company arrangements which are difficult to investigate and police.

In some cases Canadian subsidiaries of foreign companies may be restricted as to the sources of their supplies, materials and equipment; they may be expected to purchase their requirements from their parent companies or from the sources which supply such parent companies, particularly in purchases of machinery and equipment. Sometimes it is said that price considerations notwithstanding, Canadian subsidiaries often buy equipment manufactured in the United States instead of comparable equipment manufactured in Canada or in other countries. Such purchasing policies may sometimes be laid down officially but perhaps more often it is a matter of free choice on the part of the personnel of the Canadian subsidiary who may be trained to do things in the same way as they are done in the factories of their American parent company. This strong bias in favour of United States suppliers is real and should not be underestimated.

In some cases, Canadian subsidiaries of United States parent companies are permitted to export their products to the markets of Commonwealth countries because of preferential tariffs, but are prohibited from competing with their parent companies in the other markets of the world. In most cases, there may be little possibility of Canadian companies being able to compete successfully with much larger American companies including their own parent concerns but this may not always be so.

One other consequence of the relationship which exists between Canadian subsidiaries and their parent companies in the United States presents itself occasionally in wage negotiations. There have been cases where the employers have been represented not by officials of the Canadian subsidiary but by representatives of the management of the American parent company. At the same time, the employees have been represented, not by the heads of their Canadian local union, but by senior officers of their international union with headquarters in the United States. In these circumstances, suspicion may well arise that the negotiators are more interested in setting precedents for impending wage negotiations in the United States than they are with the immediate problems of the Canadian subsidiary and its employees.

It would be unfair to overstress these unfavourable operating patterns. There are so many real advantages to Canada arising from the activities of foreign-controlled companies in this country that conflicts or potential

conflicts between the interests of Canada and those of the foreign owners seem somewhat small and unimportant by comparison. Moreover, these conflicts of interests would be more the exception than the rule. Nevertheless there can be occasions when the activities of foreign-controlled companies in Canada may not be conducted entirely from the standpoint of the best interests of our economy.

We have stated that the real concern about foreign investment in Canada is not so much about its aggregate amount as about the fact that its concentration in direct investment in subsidiary companies confers upon non-residents a large measure of economic control over some of our most important industries and industrial activities. We do not suggest that this control is, or is likely to be, used maliciously to damage Canadian interests or that it is being employed in a way which flouts the wishes of our people and our governments. Nevertheless a situation does exist in some sectors of the economy where legitimate Canadian interests may be overlooked or disregarded. The non-resident owners of the larger companies which have a dominating influence may not in all cases be aware of the Canadian point of view.

In attempting to suggest reasonable and realistic objectives respecting foreign investment and the operations of Canadian subsidiaries of foreign companies, the Commission is aware that it is treading on somewhat treacherous and uncertain ground. It is important that Canada should not discourage foreign capital by unfair discriminatory action and that the free movement of interest and dividends to foreign investors should not be interfered with by currency restrictions. Measures such as these would damage our national reputation for good faith and fairness in dealing with foreign investors who have placed their capital in Canada and could well result in a slowing down in the rate of foreign investment in the future and thus in the rate of our economic activity and expansion. At the same time we should not be unmindful of the reasons which have led to such substantial foreign investment being made in Canada including the expectations of investors that their investments here will appreciate in value very considerably in the years to come. We are in a reasonably strong position, therefore, to state the objectives and wishes of Canadians in this matter without fear that by so doing we shall precipitate a flight of capital from Canada or a drying up of further inflows — providing we are fair and reasonable about the way we go about it.

In the light of these various considerations, we believe the main objectives of Canadians in this matter should be: first, to see a larger share of foreign capital invested in the form of bonds and mortgages, which do not involve control of large sectors of the economy; secondly, to see that the part of foreign investment which is invested in the resource and manufacturing industries is associated in some degree with Canadian capital and Canadian interests; and, thirdly, to ensure that control of the Canadian

banks and other financial institutions is retained in Canada. We shall propose more detailed objectives respecting the operations of foreign concerns which do business in Canada through the medium of Canadian subsidiary companies, unincorporated branches, Western Hemisphere Trade Corporations, etc. Our purpose in doing so is to ensure that such concerns are aware of and susceptible to Canadian influences and opinions when they make decisions respecting their policies and activities in Canada. We believe Canadians should have more tangible assurance than they now have that the people who are responsible for the management of such foreign-owned concerns will, whenever reasonably possible, make decisions that are in the best interests of Canada; that such concerns in effect become more "Canadian" in outlook. We do not suggest by this the development of a narrow nationalistic outlook; nor that the concerns in question should be restricted in their access to their parent companies and to all the benefits and advantages they obtain as a result. The following specific suggestions respecting desirable objectives for the operations of such foreign-owned concerns would not have these effects; we believe they would be of benefit to all concerned:

- (1) wherever possible, such concerns should employ Canadians in senior management and technical positions, should retain Canadian engineering and other professional and service personnel, and should do their purchasing of supplies, materials and equipment in this country;
- (2) they should publish their financial statements and make full disclosure of the results of their Canadian operations;
- (3) they should include on their boards of directors a number of independent Canadians and they should sell an appreciable interest in their equity stock to Canadians.*

It does not appear that the first of these desired objectives involves much of a problem. By and large, Canadian subsidiaries of foreign companies do employ Canadians in senior management and technical positions whenever they can find qualified men to fill them. In fact, in recent years, a number of the better known foreign-controlled companies have appointed Canadians to their top executive positions. Furthermore, many people who have come from abroad to manage Canadian subsidiaries of foreign companies have settled here permanently and have become useful and helpful Canadian citizens in every sense of the term. It is also true that a great many of these concerns do, in fact, purchase their requirements in Canada whenever it is economically possible for them to do so. We believe such policies are desirable in themselves. They encourage the development of Canadian management and technical talent, they stimulate employment and they are good for the economy as a whole.

* We have in mind something of the order of 20 per cent to 25 per cent.

The second objective is that foreign-owned concerns should publish or make available their financial statements showing the results of their operations in Canada. If these concerns, more particularly the larger ones, were owned in Canada, they would be required to supply copies of their financial statements to Canadian shareholders and in this way, if there were more than just a few shareholders, these statements would be made public. Generally speaking the parent concerns publish their own statements in considerable detail in their own countries. It is not unreasonable therefore that Canadians should wish similar information about the activities of the subsidiaries in this country. Indeed, it is our opinion that the community at large is entitled to be interested in the financial results of the operations of the larger foreign-owned concerns operating in this country, since in many cases these operations have a direct bearing upon economic activity and the level of employment. We do not propose that foreign-owned concerns operating in Canada should be forced to publish their financial statements, but we believe it might well be in their best interests to do so voluntarily. Such a step should improve the public relations of such concerns and should allay unjustified suspicions about their operations and activities in Canada.

The third objective is that Canadian subsidiaries of foreign companies (particularly the larger well established ones) should sell some part of their equity stock to Canadians and include a number of independent Canadians on their boards of directors. A number of companies have adopted this policy and have said that it has worked out well and to their advantage. Certainly we see no reason why, if the Canadians selected as directors were able and conscientious men, the adoption of such a policy would not work out to everyone's advantage. In addition to the fact that the public would have some assurance that broad Canadian interest would not be lost sight of in the everyday discussion and decision of company policies, the companies in question would be better informed of Canadian views and attitudes. Both in the case of long-range company planning and in decisions concerning day-to-day operations, such Canadian directors would not be likely to forget the broader interests of the nation.

The sale to Canadians of some portion of the equity shares of Canadian subsidiaries of foreign companies would, of course, be advantageous in itself because it would provide greater opportunities for Canadians to invest their savings in growing sectors of economic activity in their country. Moreover, it would make Canadians more aware of the important role of these companies in our economy and at the same time it would encourage these companies to take into account the wishes of their Canadian shareholders. But the two proposals — that independent Canadians should be appointed to the boards of directors of such companies and that some portion of the equity shares be sold to Canadians — are directly related; they complement each other and neither one would be nearly as effective

by itself. The influence which independent Canadian directors could wield in discussions about company policies would not be of great importance unless they represented a group of the company's shareholders. In fact, without this representation to support them, the position of such directors would be little more than that of employees or paid advisors to the foreign parent company. Similarly, a loose group of Canadian shareholders could hardly expect their views to be effectively listened to without forceful and intelligent representation.

The proposal that Canadian subsidiaries of foreign companies should appoint independent Canadians to their boards of directors and sell stock to Canadians is, of course, not a new one. But fewer companies than one might have expected have done anything about it. It seems to us that on the whole those Canadian subsidiaries of foreign companies which have adopted the policies we are suggesting have made a greater contribution to the Canadian economy in many ways than others that have not such policies. Those that have done so appear to be more interested and aggressive in developing their Canadian operations and to be more aware of Canadian problems and viewpoints. There is no way in which we can prove this general proposition scientifically — but it is a definite impression we have gained as a result of our travels, hearings and discussions.

Some foreign owners of Canadian subsidiary companies say that changes on the lines we have proposed might make things more complicated for them; that they could no longer operate their Canadian subsidiaries in just the same way as their various branches throughout the United States and other countries; that the separate interests of minority Canadian shareholders would have to be remembered when it came to setting prices on inter-company transactions, deciding dividend policies and so on. In fact, they say that it is simpler for them to continue their operations and arrangements in Canada in the way they are at present; there is no material incentive for them to do otherwise. There is some validity in this from the standpoint of the management of the foreign parent companies. And we doubt if there will be a widespread change in present policies — even though such changes may be thought desirable by Canadians — unless incentives are provided for this purpose. We believe, however, that such incentives could be given by some relatively minor changes in our tax laws and that they would be effective in bringing about the changes we have been discussing.

In Chapter 12 it was suggested that additional or special depreciation allowances might be granted to the secondary manufacturing industries (or to companies in all industries) in order to encourage them to keep their equipment and factory buildings modern and up-to-date. Another suggestion set forth in Appendix H is that companies in the oil and gas industries should be allowed to deduct the full amount of their property acquisition costs in addition to their exploration and development expendi-

tures. It was suggested also that companies in these latter industries should continue to be granted an allowance for depletion and that it might be computed on a more favourable basis than the present one, or that, alternatively, they should be charged a lower rate of tax on profits earned in the production side of their activities. These suggestions for new and special tax concessions were put forward primarily with the objective of assisting Canadian companies and Canadian businesses to compete successfully with their much larger competitors in other countries whose financial resources and research facilities in many cases far surpass what is available in Canada. With this in mind and if these suggestions for new and special tax concessions are accepted, it would be reasonable, in the opinion of the Commission, to make them conditional in their application to foreign-owned Canadian subsidiaries upon such companies selling some part of their equity stock to Canadians and appointing some independent Canadians to their boards of directors. Unincorporated branches of foreign concerns and Western Hemisphere Trade Corporations doing business in Canada would have the option of incorporating their businesses under Canadian laws and qualifying for the new and special tax concessions which have been suggested or of continuing to enjoy whatever advantages they are at present entitled to under their existing forms of organization. This, incidentally, would tend to offset the advantages which certain foreign oil concerns operating in Canada through the medium of Western Hemisphere Trade Corporations enjoy at present vis-a-vis Canadian oil operators.

Another step which might be taken in the field of tax policy would be a further revision of the withholding taxes on dividends and interest payable to non-residents. The rate of withholding tax on dividends paid to non-residents is 15 per cent, except in the case of wholly-owned subsidiary companies. Until quite recently the rate was 5 per cent provided not less than 95 per cent of the shares of a Canadian company were held by a foreign parent. It was alleged that this differential discouraged the sale to Canadians of any appreciable proportion of the shares of Canadian companies controlled by foreigners. In order to meet this objection, the tax treaty with the United States has been amended to provide that the lower 5 per cent rate of withholding tax will apply in future to dividends and interest payable by Canadian subsidiaries of foreign companies even though such companies hold less than a 95 per cent interest in the Canadian company concerned. An arrangement that might be considerably more effective would be to charge a higher rate of withholding tax on dividends paid to non-residents by Canadian companies unless an appreciable percentage of the equity stock of such companies is held by Canadian investors. If for example the rate of withholding tax were made the same, i.e., 15 per cent, as that charged to all other non-residents who receive income from Canada, it could hardly be said to be discriminatory. The incentive of a lower rate could be offered to those companies which complied with the objectives we have listed.

The granting of applications for mining rights, oil leases and timber limits is the responsibility of the provinces under the Canadian constitution. With this in mind, the Commission suggests that provincial governments might well consider requiring foreign applicants for such rights in future to incorporate under Canadian laws and to take in Canadian partners. We suggest that the Federal Government take similar action with respect to the Northwest Territories and the Yukon.

There is one area in which we feel that stronger action should be taken. We believe it to be most important that Canadian control be maintained of our principal financial institutions — the chartered banks and life insurance companies which are incorporated in Canada. At the present time, the share of foreign ownership of the stocks of the Canadian chartered banks and of the life insurance companies incorporated under Canadian law is not particularly large. These institutions form the very core of our financial and business system and together they control a considerable proportion of the personal savings of Canadians. Moreover, it is through the banks that monetary policies are carried through and implemented. In a comparatively small country such as Canada it is desirable if monetary policy is to work smoothly and effectively that there should be a reasonably close and preferably a somewhat informal relationship between the officials of the central bank, on the one hand, and the officials of the commercial banks on the other. Such close and personal contacts and the mutual confidence which they should inspire could be removed, and the role of the banks and insurance companies in financing economic activity in Canada might be adversely affected, if control of these important institutions were in the hands of non-residents with major interests in other countries to consider. Such people might not have quite the same sympathetic understanding of, or interest in, the problems which from time to time beset the even flow of the Canadian economy. The Commission suggests that appropriate action be taken to prevent any substantial measure of control of these institutions from coming into the possession of non-residents. One way in which this might be accomplished would be to provide by statute that any shares in such institutions which in the future are acquired by non-residents of Canada would be ineligible to vote (we do not think it would be fair, however, for this restriction to be applied to existing non-resident holders of such shares). Alternative and perhaps more desirable ways of achieving the objective of keeping control in Canada of the chartered banks and life insurance companies which are incorporated in this country will no doubt occur to the officials who are responsible for supervising the operations of these institutions and to others. We believe firmly in the importance of the objective but we are not wedded to any particular method of achieving it.

One criticism of our proposal that a substantial portion of the equity in foreign-controlled companies in Canada be sold to Canadians is that a

large portion of these shares would probably find their way eventually into the hands of non-residents, particularly Americans. American investors, both individual and institutional, have in the past bought Canadian equities on a large scale, and it is claimed that if 20 per cent or 25 per cent of the shares of a Canadian subsidiary company were sold in Canada it would not be very long before the majority of these would be held by non-residents rather than by Canadians. Some people think that if this should happen most of the advantages accruing from the policies we have suggested would be lost. With this we would agree; in our view it is important that an appreciable percentage of the shares of Canadian subsidiaries of foreign companies — we suggest 20 per cent to 25 per cent — be held by Canadian nationals or by *bona fide* residents of Canada. Therefore, if the amendments to the tax laws we have suggested are approved, we would suggest that the proposed incentives should be applicable only if the required percentage of shares is actually held or beneficially owned by nationals or *bona fide* residents of this country. The issue of shares transferable only to Canadians or residents of Canada or shares which lose voting rights on transfer to non-residents would create some difficulties, but we believe these would be more than offset by the advantages which would accrue in the long run not only for Canadians but for the companies concerned.

Some people have suggested that there is not enough capital in Canada available for investment to take up all the shares that might be offered in this way by all Canadian subsidiaries of foreign companies doing business in this country. This is quite true if this should happen all at once. But the changes which would be wrought by the kind of measures we have been suggesting would take place only gradually and over a period of years. They are not something which would happen suddenly or over night. In fact a waiting period could be provided for in amendments to the tax laws which would defer the application of the proposed incentives for a year or two or even longer and thus defer the time when action need be taken by the companies concerned. What is needed to begin with is to create the kind of climate, including an emphasis in the taxing statutes and in official attitudes, which would encourage the changes which we contemplate. There should be no compulsion and we would not expect the companies concerned to act with undue speed. The volume of Canadian savings available for investment has been increasing rapidly in recent years and we expect this trend to continue. A large part of Canadian savings has been invested in fixed interest obligations. As stated previously, we believe that non-residents should be encouraged to channel a somewhat larger share of their investment in this country into this type of financing, in government and corporate bonds and in mortgages on real estate, and that tax provisions should not restrict the flow of foreign capital for these purposes in any way. If this should happen a larger share of Canadian savings should become available for investment in equities. Under these circumstances, we see no reason why Canadians should not

ultimately be able to find the capital which would be needed or how, in the process, the Canadian economy should be upset in any way.

There would of course be many other problems and difficulties to be considered and overcome in connection with the various proposals we have made in this chapter. In some cases when the proposals were worked out in detail it might prove necessary to modify them to some extent or to provide for exceptions. For example, it might be desirable to make exceptions in special cases for new ventures whose sponsors considered it would be unwise to invite public participation because of the uncertainties involved, and also perhaps in the case of some Canadian subsidiaries of foreign concerns which for one reason or another might not be able, or should not be encouraged, to sell shares to the public. Undoubtedly there would be difficulties such as these, but we do not believe they would be insuperable.

As we said in our *Preliminary Report* most people, including most foreign investors, are aware of the discussion which has been going on in Canada about the subject of foreign investment and the very real concern about its implications which is felt by many people in this country. Despite the tremendous contributions which foreign capital — and the management and technological skills and the access to markets that has come with it — has made and will continue to make to the development of our country, we do not believe Canadians will cease to be concerned about this matter unless something is done to make Canadian voices more strongly and effectively heard in some vitally important sectors of our economy in which non-residents exercise a large measure of control. In our view there are definite limits as to what should be done about this matter, and compulsion and discrimination should certainly not be countenanced. But to do nothing would be to acquiesce in seeing an increasing measure of control of the Canadian economy pass into the hands of non-residents and to run the risk that at some time in the future a disregard for Canadian aspirations will create demands for action of an extreme nature. After considering the problem long and carefully we have come to the conclusion that the best course both for Canada and for foreign investors with capital in this country will be for us to take action along the very moderate lines we have suggested. We do not believe such action would result in any appreciable slowing down in the rate at which foreign capital will continue to flow into this country. The attractions and the potentialities for profitable investment here are too strong for that to happen.

We do not believe that over the next quarter century Canadians themselves will be able to generate enough savings to finance all the expansion and development which we have forecast. Thus we shall continue to be dependent to some degree upon importations of foreign capital. However, over the next twenty-five year period, this dependence upon foreign resources should decline at least in relative terms, although not necessarily in any

steady pattern. In years of very rapid expansion, we shall be relatively more dependent upon foreign capital than we will be in periods when we are not growing so quickly. We would expect that non-resident investment represented by retained earnings of foreign-controlled companies will continue to increase, and this of course is the most important factor in this whole question. But in an average year, twenty-five years from now, the actual inflow of new capital across our border should be relatively much less important than it is today. Nevertheless, it seems to us that the degree of non-resident control in certain areas of the economy will probably tend to increase over the foreseeable future. In all likelihood, foreign investment will continue to be highest in the resource and manufacturing industries, and it will continue to be concentrated in a relatively few companies.

We do believe, however, that any harmful effects and implications of non-resident control would be reduced substantially if the proposals we have made are implemented. In the future, as in the past, non-resident investment will have an important contribution to make to Canada's growth and development as a modern industrial nation. At the same time, the attractions and potentialities of Canadian growth will continue to confer advantages on wise and conscientious foreign investors. It would be a good thing, therefore, for both Canadians and non-residents to remember that each is in a position to benefit enormously from the other if they carry out their mutual obligations in a moderate, responsible, and constructive way; and that failure to develop awareness and understanding of the other's position can only lead to common loss.

PROBLEMS OF THE ATLANTIC PROVINCES AND THE NORTH

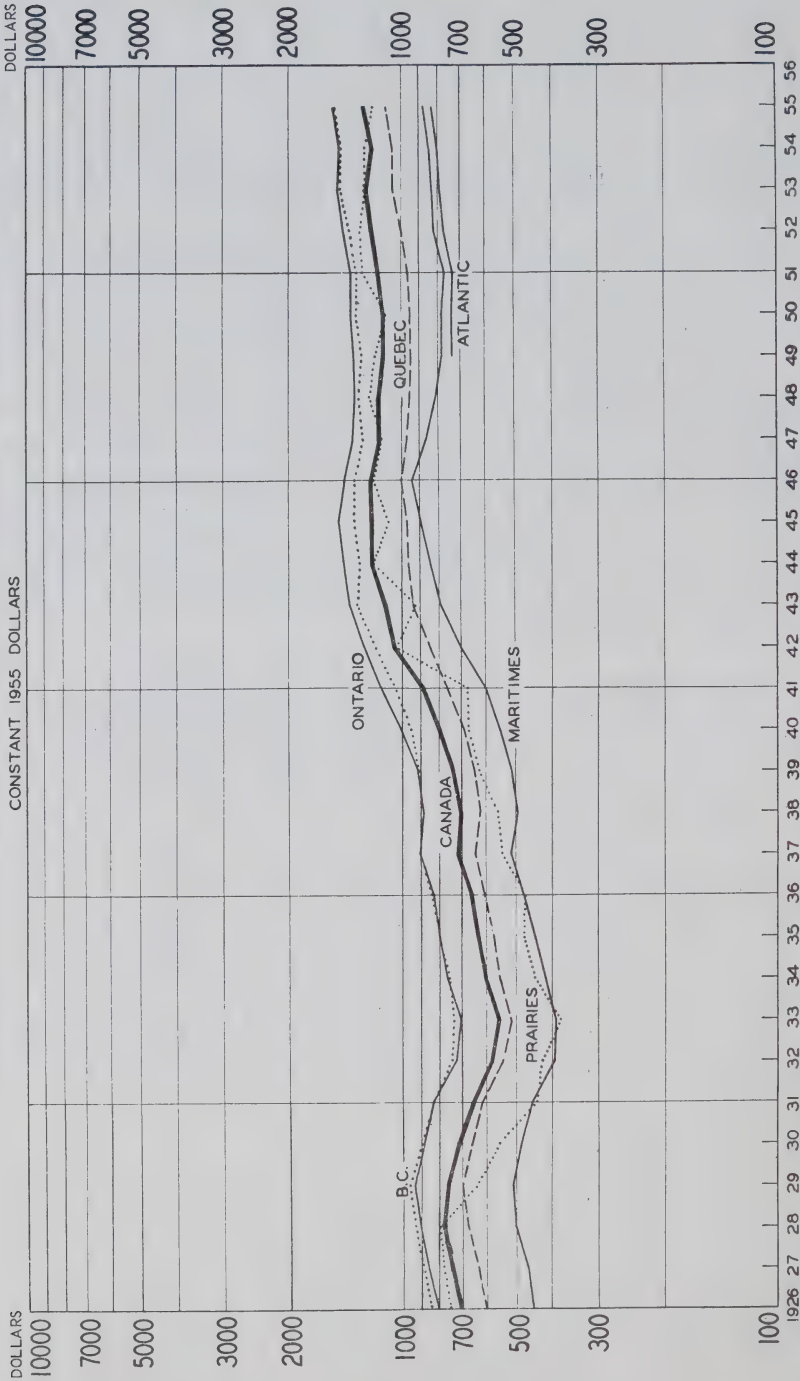
BECAUSE OF THE great variation in topography, climate and resources over the breadth of our country there is a wide diversity of economic activity in Canada, though some regions are rather more specialized than others. We believe that an increasing variety of goods and services will be produced in Canada and that this increasing diversity will be particularly apparent in some regions heretofore more specialized than most. In the Prairie Provinces for example, the variety of agricultural output will increase, as we suggested in Chapter 8, and the recent discoveries of natural resources hold high promise for new extractive and manufacturing industries based upon them. Similarly at the geographical extremes of the country in British Columbia and in the Atlantic Provinces, new post-war discoveries of minerals have already added to the list of products emanating from these regions.

All the regions of Canada have shared in the economic growth of the country. For the last 30 years, this fact is illustrated in Chart 19.I, which is taken from the study prepared for us on *Some Regional Aspects of Canada's Economic Development* and which shows personal income per capita for five regions and for Canada as a whole. It will be noted that as compared with the late 1920's all regions have enjoyed a considerable growth and no region has changed its relative position in respect of personal income per head, very much. While we expect all regions to share in the economic growth we have forecast, particular regional problems of economic development, it appears to us, will tend to be concentrated in the Atlantic Provinces and in the North. In these two regions some special measures of assistance may be required to facilitate their continued economic development. It is these two areas that we shall discuss in this chapter.

The Atlantic Provinces

About 1¾ million Canadians, or over 10 per cent of the total population, live in the Atlantic region. It is well known that the rate of economic progress in the three Maritime Provinces — Nova Scotia, New Brunswick, and Prince Edward Island — has been relatively slow for long periods in the past. However, in the last few decades, these provinces have made substantial progress. Over the past 30 years, for example, real income per capita in the Maritimes has increased at a some-

Chart 19.1
PERSONAL INCOME PER CAPITA BY REGIONS 1926-55



SOURCE: R. D. Howland, *Some Regional Aspects of Canada's Economic Development*, 1958, a study for the Commission, Chart VI.

what higher rate than the average for the other provinces of Canada. Between 1926 (the first year for which figures are available) and 1955, personal income per capita in constant dollars increased by 94 per cent in the Maritimes. This compares with an 80 per cent improvement on the average in the six other provinces. Comparable statistics are not available for Newfoundland prior to 1949, the year she entered Confederation. However, per capita net incomes (including pensions and allowances as well as "earned" incomes) in that province increased by 20 per cent between 1949 and 1955 in constant dollars, which compares with an increase of 12.5 per cent in the same period for Canada as a whole.

However, as shown by Chart 19.I, average incomes in this region have remained below the averages for the rest of Canada. In 1926, for example, the average income per capita in the three Maritime Provinces was 38 per cent below the average for the other six provinces; in 1939 the corresponding percentage was 32 per cent; in 1946 it was 24 per cent; and in 1955, 33 per cent. In 1955, the average income for the Atlantic Provinces, including Newfoundland, was 37 per cent below the average for the other six provinces. This is not to suggest that comparative income statistics are a true reflection of differences in the real standards of living in different parts of Canada. Many people in the Atlantic region would not exchange on any terms their more peaceful way of life and the comparative ease and quiet that goes with it for the noise and bustle and the tenseness which one associates with living in large metropolitan areas like Montreal, Toronto and Vancouver. Furthermore, these comparative figures ignore notable differences in the size of families in the different regions; and figures for income per family can throw almost as much light on average levels of welfare as figures for income per head. When income figures are computed on a per family, rather than per capita, basis, the disparity between the Atlantic region and the rest of Canada is slightly less marked. In 1955 income per family for the Atlantic Provinces was 31 per cent below the average for the other six provinces, compared with a disparity of 37 per cent on a per capita basis. Percentage distributions of non-farm, non-metropolitan families by income groups for the various regions are shown in Chart 19.II. In 1955, average family incomes of people living in metropolitan centres in the three Maritime Provinces were only about 15 per cent below those of average family incomes of city dwellers in the rest of Canada. (The corresponding figure for Newfoundland was 25 per cent.) Similarly, the difference in average family incomes of people engaged in commercial farming in the Atlantic region when compared with average family incomes of people engaged in similar occupations in Ontario, for example, would be less than the disparity in the average per capita figures. The greatest differences in average incomes occur among rural families. People with low incomes who are engaged in subsistence farming combined with part-time fishing and logging exist in every province but they are found more commonly in the Atlantic

region. This is one of the main reasons for the continued lag in average incomes per capita in that area as compared with other parts of Canada.

Living standards, lower in the Atlantic Provinces than they are in the rest of Canada, would have been lower still if it had not been for certain policies of the Federal Government. Federal Government transfer payments have played a much more significant role in the increase in personal income per capita in the Atlantic region than has been the case elsewhere in Canada. Such transfer payments account for nearly one-quarter of the increase in personal income per capita which has occurred in the three Maritime Provinces, Nova Scotia, New Brunswick, and Prince Edward Island since 1926. Conversely, the growth of earned income per capita in the Atlantic region has lagged behind the comparable growth in other parts of Canada. This is related to a corresponding lag in the rate of new capital investment in the Atlantic region.

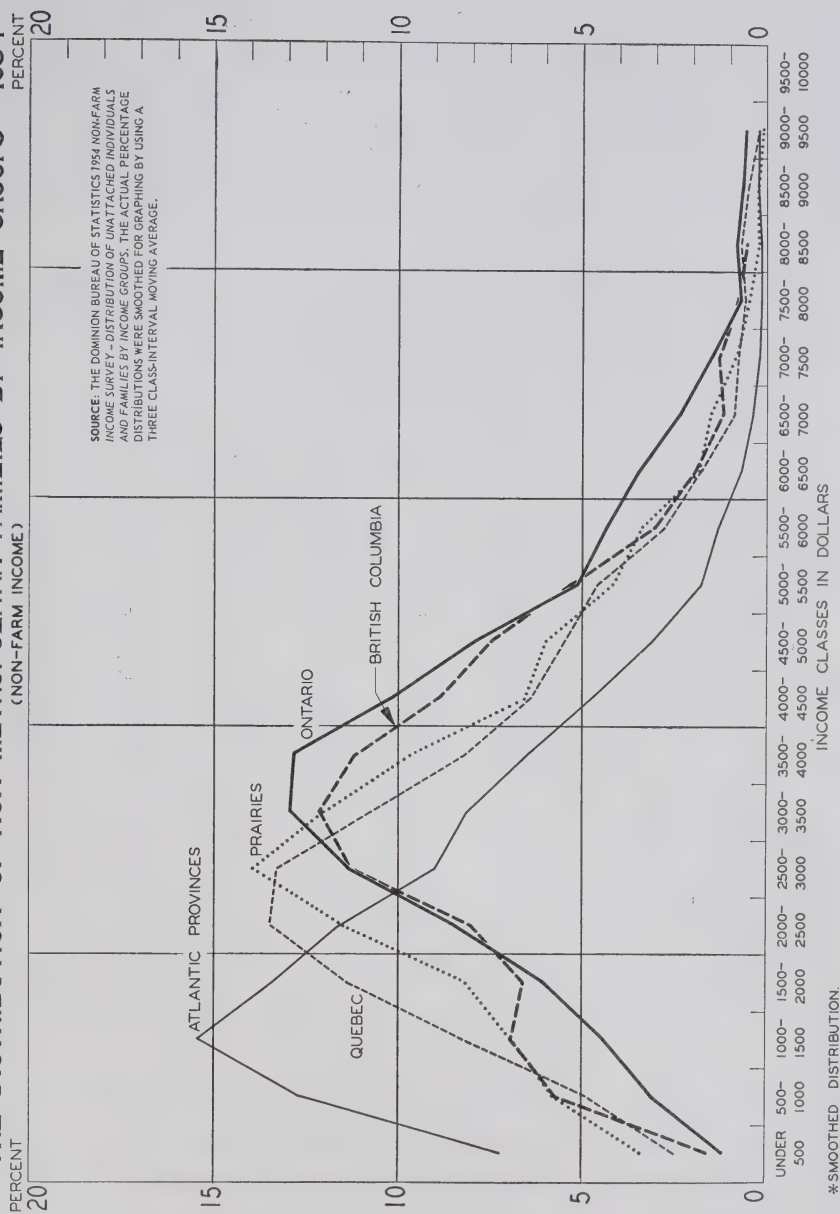
The more detailed figures of capital investment in the Atlantic region show that the lag has been particularly apparent in the productive sectors of the economy, notably the basic resource industries of the area. As shown in Table 19.1 "business investment" per capita and per member of the labour force in the Atlantic region for the period 1954-56 was substantially below the average for Canada, being one-half and three-fifths respectively of the Canadian figure. The figure per member of the labour force is somewhat higher than the per capita figure because of the lower participation of the Atlantic population in the labour force. This lower participation is the result of such factors as the large proportion of the population of the area in the younger and older age groups.

The lower levels of investment per worker are reflected in the lower levels of earned income in the Atlantic region. If the rate of capital investment could be increased the earned income per capita would also increase.

An objective of economic policy should be to integrate and improve the basic economic framework of the Atlantic region, including in particular the transportation facilities of the area with a view to facilitating and encouraging economic growth within the region. This is not likely to be accomplished by a multiplicity of unco-ordinated measures providing aid on an *ad hoc* basis. In fact, in relieving the pressure of immediate problems such aids may tend to prolong the life of industries and activities which may no longer be wholly justified in economic terms — and hence indirectly to stultify or undermine healthy growth in other directions. What is needed we believe is a bold comprehensive and co-ordinated approach to the underlying problems of the region in order to make the best possible use of the resources of the area and to improve transportation and other basic services.

As previously noted, one of the most striking features of the economy of the Atlantic Provinces is the disproportionately large number of people

Chart 19.II
THE DISTRIBUTION* OF NON-METROPOLITAN FAMILIES BY INCOME GROUPS - 1954
 (NON-FARM INCOME)



SOURCE: R. D. Howland, *Some Regional Aspects of Canada's Economic Development*, 1958, a study for the Commission, Chart V.

engaged in marginal activities, subsistence farming, fishing and logging, or some combination of these. Such occupations are the source of the low incomes which seriously affect average earnings in the region. This prevalence of subsistence occupations in the Atlantic Provinces is in part a symptom of more basic problems. Elsewhere in Canada these occupations are often associated with the fringe of the more highly developed and expanding areas. But in the Atlantic Provinces the phenomenon is more closely related to a lag in economic growth and directs attention to one of the main reasons for this lag in economic activity, namely, the relatively slow rate of new capital investment in the Atlantic Provinces.

Table 19.1

INDEX OF AVERAGE NEW INVESTMENT EXPENDITURES 1954-56 (Canada = 100.0)

	Atlantic	Quebec	Ontario	Prairies	British Columbia	Canada
	Per capita					
Primary and construction industries.....	53.3	57.5	80.6	243.3	80.7	100.0
Manufacturing.....	35.2	89.2	137.0	61.9	154.2	100.0
Utilities.....	55.9	84.9	94.4	120.2	187.4	100.0
Trade, finance and commercial services.....	57.6	73.0	136.5	96.1	110.3	100.0
Sub-total—business investment...	50.0	77.1	108.3	133.5	139.2	100.0
Housing.....	69.5	94.9	118.6	94.0	122.6	100.0
Institutions and government departments.....		88.7	93.8	124.5	120.7	100.0
Sub-total.....	69.5	92.0	106.9	108.4	121.7	100.0
Total.....	57.9	83.1	107.7	123.3	132.1	100.0
	Per member of the labour force					
Primary and construction industries.....	63.4	58.2	74.0	249.4	85.1	100.0
Manufacturing.....	41.9	90.3	125.7	63.4	162.6	100.0
Utilities.....	66.5	86.0	86.6	123.2	197.7	100.0
Trade, finance and commercial services.....	68.7	74.0	125.3	98.6	116.3	100.0
Sub-total—business investment	59.5	78.1	99.3	136.9	146.8	100.0

SOURCE: Based on data in R.D. Howland, *Some Regional Aspects of Canada's Economic Development*, 1958, a study for the Commission.

The prevalence of subsistence farming, fishing and logging in the region also suggests a widespread inadequate use of the land. We have discussed this subject in Chapter 8 in considering the future prospects of Canadian agriculture. We suggested that if the people and the government of any province are prepared to co-operate, a better system of land use should be worked out, including the provision of credit facilities to finance the consolidation of holdings and of assistance, financial or otherwise, to people who may wish to be relocated and established in other industries. We suggested in our *Preliminary Report* that in implementing

such a scheme the needs of the Atlantic Provinces might be given priority and that in the Atlantic region, particular attention should be directed to the forestry potential in the assessment of the best use of the land. This proposal for a better system of land use is now being studied by a Committee of the Senate which was established for this purpose. We are hopeful that the deliberations of this Committee will result in recommendations which when implemented will bring about substantial gains in per capita incomes in the Atlantic region in the years to come. It will be appreciated, of course, that this would have to be a gradual development extending over a considerable period, perhaps a period of 20 to 25 years.

One obvious and highly desirable step in the direction of increasing the role of new capital investment in the region is the development of a more adequate knowledge of the natural resources of the area. Large sections of Newfoundland are as yet unmapped, and although the Geological Survey has mapped the other three provinces of the region more recent techniques have outdated much of this work. Moreover, the scale of much of the mapping was insufficient for purposes of promoting mineral exploration. The early completion of the mapping of the region and a further programme of re-mapping designed as closely as possible to arouse interest in mineral development in the region is highly desirable. Further knowledge of the forestry, fisheries and hydro-power resources should also contribute to an increased interest in these industries.

We received many representations about the inadequacies and the cost of transportation facilities in the region. It was claimed that the benefits originally obtained under the Maritime Freight Rates Act have been largely nullified as a result of the succession of rate increases which have gone into effect since the War. A system of trunk highways was said to be badly needed, in part at least so that highway truck competition may have a deterrent effect upon further rate increases by the railways. But it was claimed that the provinces' share of the costs of the Trans-Canada Highway is beyond their financial competence. It was suggested that a toll road across the State of Maine—in a line between Fredericton, N.B., and Sherbrooke, Quebec,—which might be constructed for perhaps \$15 million to \$20 million, would reduce the highway distance from the Maritimes to the Montreal market by some 100 miles. An alternative proposal suggested to us was for the Canadian Pacific Railway to introduce a "piggy-back" service on their Montreal-McAdam route at rates which would compare favourably with potential truck competition. It was stated that the ferry services to Prince Edward Island are unsatisfactory and should be replaced by a causeway from Cape Jourimain, N.B. to Borden, P.E.I., which, according to tentative estimates, could be constructed at a cost which if amortized over a period of years would bear favourable comparison with the present annual deficits of the ferries. It was contended that if at the same time the railway service on the Island were replaced by a trucking

service operated by the railway and the losses presently incurred were taken into account, this project might have even more in its favour. It was argued that additional port facilities are required at Saint John, Halifax and St. John's, Newfoundland; that greater efforts should be made to persuade Canadian exporters to use these facilities; and that perhaps greater incentives should be offered to them to do so. The submissions which we received in Newfoundland emphasized the great change which has occurred in the direction of the freight traffic of that province since it joined Canada in 1949 and complained that the present services for handling such traffic through Sydney and Port aux Basques have proved completely inadequate. One suggestion that was made for improving the situation was that a new steamship service should be established from Halifax to St. John's, but no estimates were submitted of the costs involved or of the effects which this diversion of through traffic would have upon the revenues of the Newfoundland Railway, on which substantial losses have been incurred. It was made clear to us that perhaps Newfoundland's greatest single need was a greatly expanded system of roads in order to open up the resources of the province and also to establish communication between the centres of population and at least some of the potentially more accessible outports. It was suggested also that there may be a need for improved shipping facilities between Newfoundland and Montreal.

It seems evident that the transportation facilities of the Atlantic region are in need of improvement but it was not possible for us to undertake the kind of detailed study of the problem necessary in order to make positive proposals about the most appropriate measures which should be taken in order to provide solutions. Quite obviously the costs of improving the various services should be carefully estimated and considered, and care should be taken to avoid the introduction of duplicate facilities with consequent increases in total expenditures. It would be unwise to spend large sums on the construction of highways merely for the purpose of forcing a reduction in railway rates by the introduction of highway truck competition and thus increasing the present losses of the railways. It would be equally unwise to insist upon the continuance of unprofitable rail services if, with the construction of road facilities, the present traffic could be handled effectively by trucks and buses. In our *Preliminary Report* we suggested that the whole question of an improved but integrated system of transportation in the Atlantic region should be examined carefully and in detail with proper consideration being given to the costs involved in providing any new facilities and to the losses being incurred in the operation of existing services. We suggested also that such a study should include a re-examination of the present effects of the Maritime Freight Rates Act. A comprehensive study of transportation problems in the Atlantic region was initiated shortly after the publication of our *Preliminary Report*. The results of this study may have far-reaching effects and they will be anticipated with considerable interest.

A more extensive provision of other services should also help to attract private capital into the basic resources of the region. At the moment the provision of power looms large in the province of New Brunswick, where a programme of power development is related to important developments in mineral production and to the expansion of the forest products industry. It seems possible that in the future an integrated interprovincial power development and distribution system will be justified although this may require some measure of subsidy from public funds. If federal assistance is required in connection with any power development programme, we suggest that such programme be related to the needs and requirements of the coal industry in Nova Scotia.

The question of the Nova Scotia coal industry requires special attention because of the importance of the industry to the economy of the province and because of the considerable number of people who are dependent either directly or indirectly upon the industry for their livelihood. Costs of production have been high, and for many years the industry's continued existence has depended largely on subsidies provided by the Federal Government. These subsidies have been designed primarily to promote the sale of Nova Scotia coal in the Montreal and eastern Ontario markets, where 40 per cent of the output of the Nova Scotia mines is sold. For some time the competitive position of Nova Scotia coal in these central Canada markets has been deteriorating, and the markets have been retained only by increases in the rate of subvention. Prospects are that competition in this area from alternative fuels will be intensified, particularly when natural gas becomes available. In addition, it is estimated that when the St. Lawrence Seaway is completed the costs of moving competitive United States coal into the Montreal area will be reduced. Furthermore the outlets for Nova Scotia coal in the Atlantic region itself are declining, in part because of the growing use of imported crude and residual oils and in part because of the dieselization of the railways. These market developments have important implications for future employment in the industry.

With some governmental assistance the principal producers of coal in Nova Scotia are carrying out an extensive programme of mechanization. It is expected that this programme will be completed in 1960. It is estimated that the mechanization of the mines will result in a substantial increase in output per man-hour. This means, according to estimates contained in the study prepared for us on *The Nova Scotia Coal Industry* that if there were no reduction in employment an additional 2 million tons of coal would be produced each year. On the other hand, if production is not increased the services of some 4,000 of the 11,000 mine workers presently employed will not be required.

It is expected that the mechanization programme will lead to lower costs (although its effects may be offset in part at least by increased wages); and to the extent that it does so, the competitive position of the

industry will be improved. Despite this, it seems probable that if the basis of the present subsidy remains unchanged, the amounts paid in subsidies would have to be increased considerably before very long if present markets in the Montreal and Eastern Ontario areas are to be maintained. However, the most logical market for Nova Scotia coal would seem to be the Atlantic region. We suggest therefore that the emphasis of the present subsidy arrangements should be modified in order to give priority to the greatest possible use of Nova Scotia coal in this region. We believe that changes in the present subsidy arrangements should include incentives designed to encourage the use of Nova Scotia coal in the generation of thermal power in the Atlantic region. The basis of the present subsidy on overseas shipments might also be reviewed to advantage in view of the marked growth of world trade in coal. But obviously there must be some limit to the amount of assistance which can reasonably be given to any one industry, no matter how important it may be.

There is, then, a need in the Atlantic Provinces for considerable expenditures of capital on basic public facilities designed to encourage development of the resources of the region. These would include, but should not be limited to, the provision or reconstruction of adequate power and co-ordinated transportation services. The cost involved in providing these needed services, however, would seem to be beyond the financial competence of the provincial governments concerned. In view of this, we suggest that the Federal Government agree to contribute a substantial sum for capital projects in the Atlantic area to be spread over a relatively short period of years. The purpose would be to cover the costs of necessary capital investment, some or all of which would normally be the responsibility of the provincial governments. To this special contribution might be added during the specified period some or all of the considerable sums now being spent in one or other of the Atlantic Provinces each year by various departments of the Federal Government on such things as docks and wharves, transportation including ferry and coastal shipping subsidies, the development of marshland areas and the construction of public buildings. The objective would be to co-ordinate all capital expenditures and subsidies in the area other than those on projects which are national in their scope and application such as the proposed land use classification scheme, the Trans-Canada Highway and assistance to people who are unable to make a reasonable living where they are and who wish to be relocated elsewhere. In this way, such capital expenditures, including the proposed capital grants, could be allocated in a co-ordinated manner designed to strengthen the basic economic structure of the area as a whole.

The expenditure of federal funds in this way should of course be made and supervised by an appropriate agency of the Federal Government. With this in mind, we suggest that the Federal Government establish a Capital Projects Commission for the Atlantic Provinces, or some other appropriate

agency. We do not suggest that the proposed commission or agency be a permanent addition to the existing governmental machinery. On the contrary, we believe the needed facilities should be provided over a reasonably short period and that the capital expenditures involved should not be regarded as a permanent addition to the revenues of the Atlantic area. Accordingly, we suggest that when the proposed commission or agency is established it be given a limited life and be disbanded at the expiration of that time. However, inasmuch as some of the capital expenditures in question may be self-liquidating in whole or in part, it would be necessary to make provision for the continued administration of projects initiated by the commission or other agency.

The proposed commission or other agency, and the staff which it would require, should first prepare an over-all co-ordinated plan, including a list of priorities in connection with the proposed expenditures. Once this was approved by the Federal Government, the commission or agency referred to should be responsible for the implementation of the proposals, including supervision of the expenditures involved.

If such a plan is to be successful, it would be important to secure the full co-operation and support of the four provincial governments concerned. They, or their advisers, should be asked to make proposals and to suggest priorities for capital expenditures by the proposed commission or other agency. Presumably, the commission or other agency would pay particular attention to projects that might be recommended jointly by the four provincial Premiers with a view to strengthening the economic fabric of the area as a whole. In addition, individual provincial governments might be expected to make recommendations to the commission or other agency respecting projects which might be of particular importance to their own provinces but which might not otherwise benefit the Atlantic area. Final responsibility for determining priorities, however, should rest with the proposed commission or other agency, subject to the approval of the Federal Government.

Although it is considered likely that the most dynamic growth in the Atlantic Provinces will be associated with an increasing efficiency in the primary stages of the resource industries of the region and a continued extension of the processing of these products, there may be a number of other matters which, while of relatively lesser importance, may be handled in a way which would stimulate development in the area. For example, it is suggested that a greater measure of decentralization of government purchasing policies would be beneficial to local areas. This might be particularly true in the case of New Brunswick and Nova Scotia, where the defence forces have considerable establishments. Similarly, if it should prove possible to place a greater number of defence orders with manufacturing concerns in the Atlantic region without substantially adding to

costs, the resulting benefits might more than justify the additional effort and perhaps inconvenience involved. Then too, if the railways were able to work out their purchasing programmes more evenly over a longer period, this would be of great benefit to the car manufacturing industry in Nova Scotia and help to stabilize employment in that area.

The adoption of the measures which we have suggested, if vigorously supported by the people of the Atlantic region, would, we believe, result in a higher rate of economic growth in the area. However, whether or not such suggestions are put into force there is bound to be some dislocation of the labour force in the Atlantic region, from time to time, as in other parts of Canada, as workers transfer to more strongly developing sections of the regional economy. This in many instances may entail only a change from one occupation to another. In other instances there may be some movement of workers within an individual province or within the Atlantic region and in some instances beyond the region. The latter movement, it might be noted, would not be any novelty, for over the past 30 years nearly a quarter of a million people have moved from the Atlantic Provinces in search of other occupations and opportunities. There has been an even higher degree of mobility in the Prairie region during this period.

We referred to this question in Chapter 8 in discussing probable developments in the agricultural industry. There is a measure of immobility throughout Canadian agriculture. The continuance of marginal activities relating to agriculture and in part to other affiliated operations such as logging and fishing, is closely associated with low incomes and even poverty. People in such occupations often have few skills which can be readily adjusted to the modern industrial society of the urban centres of Canada. Their reserves of cash are usually limited and in many cases the families of the people concerned tend to be large. In such instances we have suggested that the Federal Government provide assistance, financial or otherwise, not only to consolidate small holdings of land but also to assist people who wish to be relocated.

We have referred to the problems of the Nova Scotia coal industry and in particular to the distinct possibility that the labour force of the industry will be reduced considerably over the next few years. We believe that generous assistance should be provided for the mine workers who may be displaced as a result of the difficulties which we foresee. Special measures will be needed for looking after these people and for re-establishing in other industries those who may be interested in such an alternative. It may be that such measures could be included under the broad national scheme we have referred to for relocating people who may wish to abandon sub-marginal farms and be re-established in other industries. But the problem of the Nova Scotia coal miners and their families is a particularly difficult one which will require both a sympathetic approach and special treatment. We suggest that on economic grounds alone, having regard to the amount

of the present subsidy, there would be every justification for paying the full amount of the transportation costs of all the members of any families who may be willing to move to other parts of Nova Scotia or elsewhere in Canada; for assistance in the provision of housing; and for training for other occupations, possibly in co-operation with industry.

To a considerable extent the dimensions of this problem of occupations and geographic mobility in the Atlantic region will be decided by the general strength of future economic development in the area. If the pace of investment is increased substantially and if there is a reasonable development of diversified occupations the process of adjustment will be much more readily accomplished and will be no more than is normal in Canada. This is highly desirable. If the pace of development, however, does not prove sufficient to facilitate such an adjustment easily, then those who may wish to re-establish themselves in other occupations elsewhere should, we suggest, be assisted in doing so.

The North

Members of the Commission had the privilege of visiting the Yukon and the Mackenzie District of the Northwest Territories in the late summer of 1955. Our first impressions were of the vastness of the area, 40 per cent of the whole land area of Canada, of the distances to be travelled and the difficulties of communication. Edmonton is the jumping off place to the Yukon and the Northwest Territories which we shall refer to as "the North". It is 1,000 miles from Edmonton to Whitehorse, Yukon Territory, and another 200 miles from there to Mayo. It is 500 or 600 miles from Edmonton to Hay River and to Yellowknife which are located on opposite sides of Great Slave Lake. It is another 800 miles from Hay River to Aklavik at the mouth of the Mackenzie River. We visited these places and others in between by airplane in a matter of 10 days. But we were lucky not to have been delayed by bad weather. And if we had travelled in any other way our journey would have taken many months even in summer-time. In winter it would have been well nigh impossible.

There is widespread recognition in Canada that the northern reaches of the country, including the northern sections of the provinces as well as the Yukon and Northwest Territories, constitute a new economic frontier. Northern Canada today and tomorrow may be what the West was in the earlier period of our history. It not only offers attraction to those in search of adventure and fortune but it has seen industry become interested in these areas as a long-term source of basic materials. Major developments such as the Kitimat plant of the Aluminum Company in northern British Columbia, the new pulp and paper plants in the northern parts of the Prairie region, and the heavy investment leading to the production of iron ore in the Ungava area of Quebec and Labrador, to note a few examples, are precursors of similar events in the future. The increasing demands for

the products of Canada's forests and mines or for special hydro-power resources will probably lead to major developments as transportation and other basic investments are made throughout the northern parts of the country. The exact form these developments will take and the time which will elapse in each instance will be largely determined by the interplay of the forces of supply and demand. The next few decades, however, will transform much of this northern area of Canada.

It is less possible, however, to be satisfied that these dynamic forces of growth will reach beyond the 60° parallel in sufficient strength to ensure the same degree of expansion in the Yukon and Northwest Territories, which for our purposes we have defined as the North. Our hesitation in forecasting such a development in the near term is not based on any reservations about the extent of the resources of these territories. It stems rather from the abundance of the resources of the northern hinterlands of the provinces, from British Columbia to Newfoundland. Where there are comparable resources in these areas, earlier development may be expected for the very reason of their greater proximity to market outlets. Industrial operations in the Yukon and Northwest Territories have been largely limited to those situations where the exceptional quality of the resources have been sufficient to absorb any economic disadvantages of operating in the region and of long-distance transportation to commercial markets.

In some instances other factors besides distance and transportation difficulties may add to the comparative advantage of more southerly developments. One of these is climate. It should be noted, however, that large areas of the Yukon and much of the District of Mackenzie are not subject to the extremely low temperatures that are experienced in northerly areas farther to the east. The average daily mean temperature throughout the five coldest months of the year in Whitehorse for example, is the same as it is in Saskatoon and Winnipeg, although the winter lasts longer in the Yukon than in these Prairie cities. Average winter temperatures in Yellowknife and elsewhere in the Mackenzie District are colder, but again are not as severe as those in the Districts of Franklin or Keewatin or in Northern Labrador.

Much of the expansion of economic activity in the Yukon and Northwest Territories in recent years has been based on the mineral resources of the region. Unlike the Klondike Gold Rush of 1896 in the Yukon which proved highly temporary in nature, most of these activities have expanded substantially over the years. The production of lead, zinc, silver and some cadmium in the Mayo District of the Yukon, for example, exceeded \$13½ million in 1954 as compared with less than half a million dollars in 1947. Gold production in Yellowknife of the Northwest Territories has risen over a 15-year period from less than \$2 million to some \$10 million. Oil production at Norman Wells has fluctuated owing to the exceptional

requirements during the Second World War but has become an established industry based on a rising local demand, now amounting to some 350,000 barrels annually. In the meantime mineral explorations in both the Yukon and Northwest Territories have given a measure of buoyancy to the economy of the region as well as further establishing its prospective mineral wealth. As a natural corollary of this increased mining activity, there has been a growth of lumbering and farming in the North, although these activities have been largely restricted to local markets where the price structure reflects the high cost of transporting such goods into the region. Farming in the North can never be at all extensive, not only because of the inhospitable climate, but also because millions of years ago a large part of the Northwest Territories was denuded of its topsoil by glaciation. This lack of topsoil is in distinct contrast with the northern areas of the Soviet Union, which did not undergo the same process of glaciation.¹ The fisheries of the Great Slave Lake, have given rise to some exports in the form of fish fillets to the United States, a development of considerable significance to those in the immediate area.

Much of the more recent development in the Yukon and Northwest Territories has its roots in the general boom in mineral exploration and production in Canada. It also reflects the improvements in transportation and communications which developed during the Second World War and in subsequent years. Wartime activities led to the creation of a number of important roads including the Alaska Highway, which gave the Yukon access to northern Alberta, while the subsequent construction of the Mackenzie Highway provided a further link between the Great Slave Lake area of the Northwest Territories and the Prairie region. The wartime growth of airports and airstrips, and the more recent air servicing of the network of radar stations in the territories, has also made many areas much more accessible as well as providing some stimulation to the economy of the region. There seems to be a strong likelihood that trans-polar air service between Europe and the North American continent, now being inaugurated by four major airlines, will lead to further activity in this direction. This should prove profitable to such communities as Yellowknife and Frobisher Bay which have been selected in the first instance as landing points.

The progress of economic growth in the North, then, if it has tended to be slow over the long period, has accelerated considerably in recent years and the economy has broadened its base far beyond the fur trade, the single staple which dominated life in the North for so many decades. With this growth has come a renewed expansion in the population of the region, although the total number of people living in the area including Indians and Eskimos is still less than one-fifth of one per cent of the population of Canada.

However, between 1941 and 1951 there was a considerable influx into the region while the indigenous Indian and Eskimo populations have also increased numerically. In terms of population the region is making a rapid recovery from the great losses which followed the collapse of the Klondike Gold Rush in the Yukon where population had risen to over 27,000 by 1901, a few thousand more than the present population of the territories as a whole. The population of the region now is almost equally divided between the Indians and Eskimos and Canadians from other parts of the country. The Indians and Eskimos are greatly in the minority in the Yukon, numbering 1,533 and 30 respectively according to the 1951 census, out of a total of 9,096 persons. They are, however, in the majority in the Northwest Territories; there being 3,838 Indians and 6,822 Eskimos out of a total of 16,004. Over 10,000 of the total population of the Northwest Territories are in the District of Mackenzie where conditions are less severe and where economic activity is highest. The great majority of the Eskimos live in the more northerly and easterly Districts of Keewatin and Franklin where they are strongly preponderant.

The prospects of substantial economic development in the Yukon and Northwest Territories in the years to come depend largely on the expansion of mining and the development of oil and gas. There may be some increase in the export of fish and forest products; but most of these other forms of activity, including some further production of farm products, will depend on the growth of mining in the North. One exception to this may be the growth of forestry activities in the Mackenzie valley area.

The pace of further development in mining and in oil and gas will depend in part on the progress of mapping and exploration in the region. Much of the Territories has not yet been surveyed, although this work has been proceeding at a rapid rate in recent years. The wealth of mineral resources already revealed suggests that other deposits of mineral may well be discovered as a result of further exploration which will prove sufficiently rich to offset any disadvantages of such northerly operations. It is recognized, however, that more general growth of mining activity will depend on overcoming the handicap of relative isolation from commercial markets and of providing more adequate and less costly transportation. It was suggested that as the Alaska Highway had led to considerable development in the Yukon, a further network of highways would do more than anything else to encourage further expansion in that area.² The emphasis in representations on behalf of the Northwest Territories was on an extension of the railhead from Grimshaw or Waterways, Alberta to the south shore of the Great Slave Lake.³ Such a railway, it was thought, would have general beneficial effects in most of the Mackenzie District of the Northwest Territories and would lead in particular to the mining of the large base metal deposits held under lease by the Consolidated Mining and Smelting Company at Pine Point in the Hay River area. A further sug-

gestion was made that the extension of the Mackenzie Highway, by the direct benefits which this would bring to already established communities such as Yellowknife, would also provide the basis of extensive and sound development.⁴

The major railway companies have announced that they are making detailed studies of the economics of such an extension of the railhead and it is to be expected that the Federal Government, in whom natural resources of the region are vested, will keep the subject of improved transportation under constant study. The form which future improvements in transportation facilities should take, the timing of such improvements and the costs involved will of course have to be reconciled with probable future demands for minerals and with the claims of other areas.

An immediate problem relates to the precarious position of the Indian and Eskimo population, most of whom are still engaged in the traditional occupations of trapping, hunting and fishing. The resources of the region in this regard do not appear to be adequate to support an expanding population at anything like Canadian standards of living. The problem seems to be particularly acute with Eskimos, for the impact of modern industrial society on them has only recently been felt in any great degree. Many factors including the numerical decline in game and in fur-bearing animals, the introduction of synthetic furs and the vagaries of the fashion world, have resulted in real hardship among many of these people. Their health problems have also claimed more attention partly as a result of increased disabilities. Some of them have found satisfactory employment in connection with various government activities in the region including the defence stations and in a few instances with private industries; but such alternative occupations have absorbed only a relatively small fraction of the total. As a result, relief measures have had to be implemented on a fairly substantial scale even though the Indians and Eskimos have shared, in common with other Canadians, in the improved social welfare services, family allowances, social security payments to the aged, blind and disabled as well as improved health services, which have marked recent Federal Government policies. The problem of providing a satisfactory means of livelihood for the Indians and Eskimos in the North is a very real and difficult one. Relief and social security measures which may be appropriate elsewhere in Canada may prove to be quite unsatisfactory when applied to the native peoples of the North accustomed as they are to a more primitive way of life.

Various Federal Government agencies have been directing efforts to meet these problems. The Indian Affairs Branch of the Department of Citizenship and Immigration in co-operation with other departments has attempted to introduce some stability into the traditional life and economy of the Indians and to supplement present means of livelihood. Among

other things, game conservation and management measures have been introduced, equipment, such as fishing nets and boats, and refrigeration facilities, have been provided, and aid given in the construction of houses. The Department of Northern Affairs and National Resources recently established an Eskimo Loan Fund to assist individuals, or groups in carrying out approved projects for the improvement of their economy. Stone carving and other handicraft activities are proving to be a source of income to Eskimos in the eastern Arctic. Boat building has been successfully sponsored in other areas, while some families have been transferred or encouraged to move to areas where game or fur resources are more ample. The management of reindeer herds, introduced to the Reindeer Grazing Reserve near the mouth of the Mackenzie River in 1935 by Eskimos, is in the experimental stage, as are a number of other projects designed to diversify and strengthen the Eskimo economy. It is to be noted also that the great majority of the Eskimos who have accepted employment with either government departments or with mining companies have shown ability to adjust themselves to regular employment and have proved satisfactory workers.

Programmes such as these are obviously desirable. Even greater activity will have to be undertaken in the near future and constant attention given to easing the conditions and the adjustments which will be required from the Indian and Eskimo populations. Such aids should be generous but directed to preserve the independence and self-sufficiency of our fellow Canadians in the far reaches of the North.

THE ROLE OF GOVERNMENT

AS WE SAID in the first chapter, the interplay of supply and demand as expressed in the workings of a free and flexible market economy will make the greatest contribution to the growth and development which we foresee. Wide dissemination of the powers and responsibilities involved in making economic decisions among large numbers of people in the ordinary course of their business transactions, in other words the operation of a free market economy, has been responsible in large measure for the very considerable increase in living standards in Canada over the years. And we believe that if the continuing developments and the future improvements in income levels which we have forecast are to be realized, this will be dependent upon the maintenance of the free market system in the future. However, as our society becomes more complex and more highly organized, as the transition is completed from a country that was rural and agricultural in its outlook to one that is mainly urban and industrial in its character and requirements, we may expect the responsibility of government at all levels, federal, provincial and municipal, for maintaining an economic climate favourable to development and growth to continue. In the future, as in the past, government action will be needed in certain spheres of activity to supplement the role of private initiative and enterprise. But while government action may be needed to influence and guide the direction in which private initiative moves this does not mean that fundamental changes are needed in the operation of the system of the free market in Canada. It means, however, that in the changing conditions of the future, government action will be desirable in a number of different fields if obstacles to growth are to be avoided and difficulties are to be resolved.

This view of the complementary roles of private initiative and of government action is, of course, as old as Canada itself. There were compelling economic considerations as well as political reasons which led to the federation of the separate colonies in 1867.¹ Shortly afterwards British Columbia and Prince Edward Island were induced to enter Confederation mainly by the promise that they would be provided with transportation facilities. And Newfoundland received many financial and economic benefits by joining Canada in 1949. This is not to suggest that the political framework into which the several provinces came together was a logical entity in terms of either geography or economics. However, the

great majority of Canadians have wanted to remain separate and independent from the United States and have been willing to pay a price for doing so. And despite certain natural disadvantages we have become one of the most prosperous nations of the world. But from the very beginning it has been necessary for Canadian governments, of whatever political party they may have been composed, to adopt an active role in economic affairs sometimes in order to stimulate private initiative and sometimes to undertake projects which were of little interest to, or were beyond the scope of, private enterprise. Huge grants and subsidies had to be paid for the construction of the railways which were a condition of Confederation. Public moneys have been expended on canals and other public works since the earliest days and are still being spent in this way. Shortly after Confederation, the "National Policy" of tariff protection was established to assist the development of a domestic manufacturing industry and a system of land grants was inaugurated to open up the West. Attempts have been made to assist the Maritime Provinces by changes and adjustments in the railway freight rate structure in that area. Freight rates on grain moving from the Prairies have not been increased since 1898 in accordance with the Crow's Nest Pass Agreement. Governments have not hesitated to assist the agricultural and fishing interests as occasion has demanded. And in the early days of the century immigration was encouraged on a very large scale indeed.

In more recent times and particularly since the War, the government has become increasingly concerned about the importance of maintaining, on the one hand, a high level of employment throughout the country and of controlling inflation, on the other. This twin objective has become and is likely to remain the principal preoccupation of the senior level of government in Canada in the field of domestic policy as it is in other countries, including the United States and the United Kingdom.

This report upon the studies we have made of Canada's economic prospects over the next quarter century is concerned primarily with long-term trends and the policies which can promote growth and development over a long period of years rather than with short-term fluctuations in the level of economic activity. But the forecasts we have made of Canada's economic prospects are possible of attainment only if there is no prolonged period of mass unemployment and only if inflation does not get out of hand. These are important reservations. If there is mass unemployment or if there is serious inflation, our forecasts are not likely to be realized. And quite apart from this, the upheavals and the misery which would result from such unemployment or inflation would probably bring in train some basic changes in the structure of our social and economic life.

These two objectives of governmental policy, encouragement and promotion of steady growth and development over the long term and the

ironing out of peaks and valleys in the level of cyclical economic activity during short-term periods are not mutually exclusive. If long-term development policies are to be successful, a high level of employment will have to be maintained. If large numbers of people are unemployed for an extended period, growth and development would be suspended. It follows, therefore, that measures taken to promote a high level of employment or to avoid inflation, which if left unchecked may end up in depression, are consistent with, and are a necessary ancillary to, other policies designed to promote growth and development more directly. It is for these reasons that we think it appropriate to include in this report a brief review of the problems involved in maintaining economic stability in Canada over the short term. This we shall do in the first part of this final chapter.

Maintaining Economic Stability

Before we begin to speak about unemployment, it may be well to define our terms. "Cyclical unemployment", the kind we experienced on a massive scale in the '30's, is what we are most concerned about. The objective of governments is to even out or at least to moderate the peaks and valleys of the business cycle; to restrain the level of economic activity to some extent in periods of boom and to stimulate activity in times of recession or depression. In this way it is hoped that inflation will be avoided in periods of great activity and expansion and that deep "cyclical unemployment" will be avoided in periods of adjustment and recession.

In a free and dynamic economy in which people are entitled to change their occupations as they choose and to move from place to place and in which there are continually changing products, methods and consumer demands, there will always be those who are out of work at any given time. This cannot be avoided. It helps to keep the economy flexible and it enables people to seek better opportunities in other occupations or in different places. This we shall refer to as "frictional unemployment". If there were no "frictional unemployment", if 100 per cent of the working force were fully occupied all the time, which of course is a theoretical and not a practicable proposition, the inflationary pressures which would be created would be uncontrollable. The question to be answered, however, is where does "frictional unemployment" end and "cyclical unemployment" begin? Or, to put it another way, what is the maximum percentage of the total working force which should be idle or in process of changing jobs when we say that the Canadian economy has full employment in a practical sense? In our computations of the probable growth of the Gross National Product we have used a rate of 3 per cent for "frictional unemployment", the average rate of unemployment for the years 1951 to 1955. This includes provision for "seasonal unemployment" and for those people who are unemployable for one reason or another. Many people will think that we

shall continue to be threatened with serious inflation if on the average only 3 per cent of the total working force are frictionally unemployed; especially so as this average figure includes "seasonal unemployment", which because of our climate is bound to be higher in Canada than in some other countries. It is possible that such fears may be justified. Professor Neil H. Jacoby, a former member of President Eisenhower's Council of Economic Advisers, has stated that "the consensus of American economists is that the United States economy has full employment in a practical sense when 96 per cent of the working force has jobs and about 4 per cent are in process of changing jobs. (Many believe that the ratios are closer to 95 per cent and 5 per cent.)"²

This question of the tolerable level of "frictional unemployment" in Canada requires a great deal more thought and study before there is likely to be any general agreement on the subject. And until there is some measure of agreement about it, at least in professional circles, the task of government in trying to avoid cyclical unemployment on the one hand and inflation on the other will be that much more difficult and uncertain.

We have mentioned "seasonal unemployment" which to some degree, as every Canadian knows, has always been endemic in our economy. This will continue to be the case in all probability but we would hope on a relatively decreasing scale. In recent years quite a bit of progress has been made in so planning construction jobs that they can be continued through the winter months. As we suggested in the chapter on secondary manufacturing, we believe there is scope for a greater degree of co-operation in the field of long-term planning between the purchasing departments of governments at all levels, the railways, the other large public utilities and other important buyers and their various suppliers. This also might help to mitigate to some extent the impact of "seasonal unemployment". But that there will always be some "seasonal unemployment" in Canada is one of the facts of geography and of climate that we shall have to be prepared to put up with.

From time to time there may be unemployment or underemployment in certain areas or regions despite the fact that generally speaking the level of economic activity is high in Canada and that according to the statistics there may appear to be a condition of more or less full employment taking the country as a whole. This we shall refer to as "regional unemployment". It usually arises when there is slack demand for the products of an industry or industries concentrated in an area or region of limited diversity of economic opportunities. In a region with little diversity of activity, members of the working force affected by a decline in the demand for their services in one employment may not have alternative opportunities open to them. Employment in some small towns may be

dependent on the operations of local factories, e.g., textiles or furniture. If these industries are depressed and their operations curtailed as a result, despite a high level of business activity in the country as a whole, this may bring about a condition of "regional unemployment" in the more local sense. The prevention of, or the correction for, such instances of "regional unemployment" may not be easy to accomplish without introducing restrictions and rigidities into the picture which, if resorted to too freely, would soon distort the flexible workings of the whole economic structure. In some cases, however, some compromises with perfection will be called for, at least in the short term, and during periods of transition made necessary perhaps by technological or other changes.

A number of new instruments have been developed in recent years and are available for use by governments in attempting to achieve the twin objective of a high level of employment while avoiding inflation. These include progressive personal income taxes, unemployment insurance and social security payments such as family allowances and old age pensions. While the tax on corporation incomes is not progressive in its structure (except that the first \$20,000 of income is taxed at a lower rate), governments can influence the timing and the rate of industrial expansion to some extent by making adjustments in the allowances granted for depreciation and depletion and by such incentives as the three-year exemption from taxation on the profits of new mines. In addition, the Bank of Canada, which was established only as recently as 20 years ago, can bring great influence to bear upon the rate of economic activity by judicious changes in monetary policy.

This new and very important preoccupation with the problem of ensuring a high level of employment and at the same time avoiding inflation has resulted in a changed approach to government budgeting. Projected changes in taxes, for example, may now be considered primarily from the standpoint of their probable effect upon economic activity and only secondarily as to their impact on government revenues. In times of expansion, when inflationary pressures are evident, governments should budget for surpluses; in periods of recession, governments should be prepared to reduce taxes and budget for deficits. But the trouble with this theory of cyclical budgeting is that the man in the street may not fully understand it; more importantly, whether or not he understands the theory, he may not like it. The average man, being a somewhat contrary individual, may resent being called upon to pay relatively high taxes even in good times. And under our democratic system, no government for long can run counter to the wishes or the prejudices of the average man if it is to remain in power. The problem of reconciling this elementary fact of political life with sound economic theory will not be easily resolved. We do not mean to suggest by this that the principle of cyclical budgeting should be abandoned. On the contrary, we believe it to be of the greatest

importance. We raise the question, however, because we believe this is one of the problems to be overcome if, in the future, governments are to be successful in their attempts to ensure a high level of employment throughout the country without a rise in the level of prices.

While we do not wish to underestimate the difficulties which were referred to briefly in the preceding paragraph, it may help to get this problem of public acceptance of cyclical budgeting into better perspective if we review in somewhat more detail the progress which has been made in recent years in devising means for combatting unemployment and for containing inflation. At the same time, the shortcomings and weaknesses of these new measures should not be lost sight of. The Great Depression of the '30's made a lasting impression particularly on those Canadians who were of working age and responsible for the maintenance of themselves and their families at that time. (This, incidentally, may not include many people who are now under 45 or even 50 years of age.) Understandably, this meant that both prior to the War and particularly during its later stages, those who held positions of responsibility and authority were greatly concerned about the possibilities, at the completion of hostilities, of another period of mass unemployment with all the waste and misery and degradation which this would entail. Various measures were introduced which would tend to mitigate to some extent the evil effects of such a calamity. Three of these measures which are sometimes called "built-in stabilizers" and which we have referred to previously are the unemployment insurance plan and such social security payments as the family allowance and old age pension schemes. The objective of unemployment insurance is self-evident. Funds are set aside in good times which are available to be paid out during limited periods of unemployment and thus to cushion the shock of reduced incomes. Payments under the family allowance and old age pension schemes while desirable in any case from the point of view of social security would have the added advantage of providing people with some minimum income in depressed as well as in prosperous periods. The progressive tax on personal incomes has somewhat the same effect when times are poor: in times of high incomes a greater proportion of total income is drawn off in taxes; but when incomes fall, the amount payable in personal income tax falls more than proportionately and this tends to cushion the effect.

The government is in a position to influence the rate of economic activity to an appreciable extent by adjustments in the way in which corporate incomes are taxed. For example, in the years following the War, generous incentives were given to the mining and oil and gas industries which undoubtedly stimulated the activity which has occurred in these fields. Another way in which the timing of industrial expansion has been slowed or accelerated has been by reducing or increasing the allowances for depreciation and depletion on new capital expenditures.

But there are two main weaknesses or limitations in this connection which should be mentioned. In the first place, an appreciable time lag is bound to occur between the date of the announcement of any such changes in the tax arrangements and the time when the effects of such changes become manifest through changes in corporate policies. In the second place, there may be some understandable reluctance on the part of those in authority to withdraw tax incentives to particular industries until well after they have accomplished the purpose for which they were introduced originally.

If a serious degree of unemployment is threatened, governments can and unquestionably will be expected to do what they can to stimulate economic activity by reducing the level of taxes and by increasing expenditures. This, of course, means that governments can and should embark upon a policy of deficit financing if this is thought to be necessary in order to provide a stimulus to the economy and thus, if it is effective, to reduce unemployment. It may be noted in passing that the man in the street is not likely to be nearly as critical of the workings of this part of the theory of cyclical budgeting, reducing taxes and budgeting for deficits, as he is when the times call for budget surpluses and the maintenance of high tax rates.

We do not mean to suggest that governments are now in a position to prevent unemployment merely by the process of reducing taxes and increasing their expenditures. Tax changes cannot be made lightly, firstly, because levels of taxation represent compromises between the interests of the various groups in the community and, secondly, because in a democracy once a tax is reduced it is very difficult to get it increased again except in the case of dire emergency. It may be even more difficult to increase expenditures on public works quickly enough to bring any appreciable immediate relief if the degree of unemployment is at all severe. To begin with, there would need to be some consensus among governments at the federal, provincial and municipal levels if expenditures on such public works as highways, roads and streets, hospitals, schools and universities, municipal redevelopment schemes, public buildings, railway extensions and the like were to be introduced quickly enough to be worth while. No doubt an agreement among the different levels of government could be worked out reasonably quickly if the degree of unemployment was serious enough and if there was not too much quibbling about which government was to put up the funds. But it must be remembered that the planning and preliminary engineering of such public works as have been mentioned may take many months or even years. The actual work on the contemplated projects cannot be started until the preliminary planning is completed. Under such depressed conditions as we have been speaking about, it would be possible for the government to try to stimulate housing development by appropriate amendments to the National Housing

Act. But in any prolonged period of unemployment, it is probable that the rate of family formations would be reduced. This would have some bearing upon the demand for housing so that the government's efforts in this direction would not be likely to be fully effective.

The fact of the matter is that the problem of preventing unemployment or of correcting a condition of unemployment once it occurs has not been fully solved. There are things which governments can do under such conditions and if they are done at the right time and with sufficient vigour and forthrightness, we may be hopeful, perhaps cautiously optimistic would be a better way to put it, that they will be successful, depending upon the circumstances at the time and particularly upon conditions and circumstances in the United States. But the business of influencing the level of economic activity in a country is a new art which is relatively untried. And there is nothing certain or foolproof about it.

The whole matter is further complicated by the very important part which public confidence has to play. If businessmen and investors are confident and optimistic, it should not be hard for governments to encourage expansion of economic activity. On the contrary, it may be difficult for governments to hold things in reasonable check in order to avoid inflation and to prevent the creation and development of over-capacity of productive facilities. If, on the other hand, businessmen and investors lack confidence it will be extremely difficult for governments to persuade them to take chances and to expand their operations. This difficulty is particularly pertinent in Canada because of our close proximity and our sensitivity to economic conditions and to the climate of business opinion in the United States. If there should be a lack of public confidence in the United States and if the level of economic activity in that country should fall off as a result, its effects will assuredly be transmitted to Canada.

No one is in a position to say with assurance whether or not there will be periods of "cyclical unemployment" on a serious scale during the next twenty-five years. If there should be a serious depression in the United States during this period, its effects undoubtedly would spread to Canada as we have said and the problem of counteracting them will be difficult indeed. We are hopeful that there will not be a deep depression or serious unemployment in the United States or in Canada and all our forecasts are based upon this premise. But we are not unmindful of the fact that as recently as three years ago, there was a worrying amount of unemployment in Canada. It is true that it was somewhat spotty in its application but it was substantial nonetheless especially in some parts of Ontario and Quebec. This may happen again at any time and it will be surprising if it does not happen from time to time during the next twenty-five year period. In such event, the objective of governments should be to take whatever remedial action may be considered appropriate quickly enough to prevent

unemployment from spreading without being stamped into action which could lead to inflation. This will not be easy.

There will be some "frictional unemployment" at all times if we are to avoid inflation and if the free market system is to function. If the percentage of the working force which is frictionally unemployed tends to approach the maximum which may be considered tolerable, governments should begin to take action along one or more of the lines we have been discussing. We would expect also that governments in the future as they have in the past will think it proper to ease conditions of "regional unemployment" in areas where for one reason or another the principal industries are depressed. Subsidies to the gold mines and to the coal mining industry are cases in point. The assistance which these industries have received has permitted them to reduce their activities, including the numbers of their employees, gradually and over an extended period of time. In this way the employees involved have been given time to obtain employment in other occupations and the unhappy and disrupting effects of sudden "regional unemployment" on a large scale have been reduced. Undoubtedly there will be occasions when there is "regional unemployment" in some parts of Canada despite a condition of general prosperity and of inflationary pressures in the country as a whole. The measures which it may be necessary for governments to take in such cases, while tending to alleviate the particular problem, may well tend to aggravate the more general problem of inflation. It will not be easy to resolve such contradictory pressures.

Many people believe that the problem of maintaining a stable level of prices in the future will be even more difficult than preventing unemployment and that the dangers of inflation will be in our minds much of the time over the next quarter century. As we said in our opening chapter, there will be plenty of ways to spend our increasing wealth. But there will be competing claims on our resources and at any one time some of them may have to be deferred. To do otherwise will be, if not to court disaster, at least to run the serious risk of inflation which if uncontrolled can lead to recession or depression. This was stated in somewhat different words by the Governor of the Bank of Canada in his annual report to the Minister of Finance for the year 1956:

"The object of economic policy in the world today is to promote high levels of economic activity and employment with stability of prices — to facilitate economic growth at the highest rate that can be sustained for years at a time without endangering the stability of the currency or the cost of living. A hectic attempt to expand too fast is inconsistent with these objectives, and is also self-defeating. In addition to promoting inflation, it is bound to create excesses and distortions, overcapacity in some fields and deficiencies

in others, and to end in a recession or depression which brings expansion for a time to an end. The greater the excess of attempted expansion over that reasonably attainable, the sooner will the recession arrive and the worse will be its rigors and difficulties of adjustment.”³

Inflation is not something that can be treated lightly or complacently. So-called “creeping inflation” of, say, 2 per cent or 3 per cent per year would mean a doubling of prices in 35 or 23 years if it continued to creep at the same rate for that long a period. But probably well before that time the rate of inflation would have developed into a walk or even a run with the inevitable results which have been mentioned. In the interim the public might lose its faith in the continuing value of the currency and serious stresses and distortions would be created in the Canadian economy.

It may be remarked in passing that a high rate of saving will continue to be needed if the Canadian economy is to go on growing and developing; this would be less likely to occur if there should be any serious loss of faith in the continuing value of the currency. “Inflation forcibly restricts consumption by exacting the greatest sacrifice from those least able to bear it. It sets up many social and economic stresses, and it feeds on itself — the so-called spiral of inflation of prices and costs.”⁴ The people who get hit the hardest in a period of rising prices are pensioners, people who have retired and others with fixed incomes, the so-called white collar class whose salaries are relatively inflexible and particularly those who are not organized in trade union groups. Over the short term, organized wage earners may fare better than other groups; but if the inflation gets out of hand and leads to a recession or depression with its resulting unemployment, they will suffer in the long run along with all the others.

A lot is said these days about the inflationary pressures created by the so-called wage-price spiral. It seems probable that we shall be confronted with this phenomenon for many years to come and it may be appropriate to say a few words about it at this point. Because of improved technology, greater use of machinery and “automation” productivity in some industries is rising at a fast rate, much faster than the average increase in the rate of productivity for the nation as a whole. Not unnaturally the workers in these industries and their union leaders expect to share in the benefits from the increased productivity and therefore they demand increases in their wages. The increases which are granted may or may not exceed the reductions in costs resulting from the increased productivity. If they do not exceed such cost reductions, no harm may be done insofar as the particular industries are concerned (although reductions in the prices for the products of these industries which might otherwise have been possible will not be able to be made). However, a wage scale will have been established in these industries at a higher level than it was at before and higher than the

scales prevailing in other industries. Seeing what has happened, the workers in such other industries demand that their wages be increased too even though the increase in productivity in their industries may be much smaller or even negligible. If they are strong enough their demands will be met and the prices for the products of such other industries will then have to be raised in order to meet the increased costs. In periods of full employment and with an increasing percentage of the working force employed in the service industries where gains in productivity are not likely to rise very rapidly, this can produce the so-called wage-price spiral of inflation.

There is no simple answer to this problem. Some people say that in industries where the rate of increased productivity is high, workers and their union leaders should exercise restraint in making wage demands. But to expect any highly organized group in our society to exercise restraint for long where their self-interests are concerned may prove to be a pious hope that is not likely to be substantiated by experience; workers in these favoured industries may fail to see why they should exercise restraint unless they can be assured that all other groups in our society will do the same. Other people say that managements should stand firm and should refuse to grant increased wage demands if this will lead to increased prices. But managements are paid to keep their companies going and to earn a profit. This is and must continue to be their principal preoccupation, although, like all responsible members of the community, including organized labour, they should not be unmindful of other and broader considerations of the public interest. One thing seems certain. We shall not find the answer to the problem of inflation by blaming one or other of the many groups and classes that together comprise what we refer to as the free market economy. This is one problem where the solution, if there is one, must lie within the area of government policy and action including leadership and continuing education in these matters.

The most pervasive, impersonal and effective way of combatting inflation is through monetary policy designed to raise interest rates or to reduce the amount of money and credit available or to do both of these things. This is the direct responsibility of the Bank of Canada, which was established according to the preamble of its Act of Incorporation for the following purposes:

“Whereas it is desirable to establish a central bank in Canada to regulate credit and currency in the best interests of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment, so far as may be possible within the scope of monetary action, and generally to promote the economic and financial welfare of the Dominion. Therefore”⁵

Monetary action initiated by the Bank of Canada can be very effective within considerable limits in influencing the level of economic activity throughout the country. It can be particularly effective when the times call for restraint in view of rising pressures of an inflationary character. But monetary action by itself should not be expected to do the whole job of controlling a substantial and persistent rise in prices. If it appears at any time that inflation seems to be getting out of hand, then monetary policy will need to be supported by policy changes in other fields, i.e., by fiscal measures and by the reduction of government expenditures which we shall refer to later. The need for monetary policy to be integrated with, and supported by, other measures may be all the more true in Canada, where monetary policy has to contend with a number of special conditions and considerations and thus is subject to some special limitations.

As we have pointed out before, many of our most dynamic and expanding industries are dominated by Canadian subsidiaries which are controlled by parent companies in the United States and other countries. The development programmes of these Canadian subsidiaries may be influenced only indirectly, if at all, by the workings of Canadian monetary policy. Their capital requirements may be supplied either by their foreign parent companies or by the ploughing back of their own earnings and deferring the payment of dividends to their parents. This gives these companies a decided advantage over their domestic competitors in Canada who must look to the security markets and to the commercial banks to meet their needs for capital. The competitive disadvantage of such domestic Canadian companies vis-à-vis Canadian subsidiaries of foreign concerns will be made more difficult by a severely restrictive monetary policy. Furthermore, if despite the operations of a restrictive monetary policy, capital developments in certain industries can be proceeded with more or less with impunity (including developments by Canadian subsidiaries of foreign concerns), they will tend to draw resources away from other sectors of the economy where development may be equally, if not more urgently, required. This is another reason why a restrictive monetary policy in Canada cannot be pushed too far. To do so might distort the situation and hold back development in such other sectors of the economy to a greater extent than may be thought desirable in the interests of an even growth.

Still another consideration which cannot be overlooked by our central bank authorities is that while monetary action can be an extremely effective and persuasive instrument for restraining a dangerously rapid rate of economic activity, it is nevertheless a somewhat blunt one. With the best will in the world on the part of all concerned, the effects of a restrictive monetary policy cannot be distributed evenly over all sections and classes in the country. The activities of the weaker credit risks, who are more likely to be the smaller businessmen, are apt to be restricted to a greater

extent than those of larger concerns, including Canadian subsidiaries of foreign companies, which may be less dependent upon the security markets and upon bank credit. This has the further complication that the effects of a restrictive monetary policy may fall more heavily on those sections and regions of the country where a greater proportion of the business is conducted by smaller concerns than is the case in others. Monetary action cannot play favourites and it cannot discriminate between different classes of borrowers. As we have said, one of its great advantages is that it is impersonal in its application. In Canada, however, there may be times when it would be desirable if possible to promote economic activity in some parts of the economy while everything points to restraining the rate of activity in general. This is beyond the scope of monetary action. But it is a consideration nonetheless which places some limitation upon the extent to which monetary policy should be expected to operate by itself and without help.

There is also the question as to how far monetary policy in Canada may differ from monetary policy in the United States for any extended period. If, as a result of restrictive monetary policy, interest rates in Canada get too far out of line with those in the United States, some Canadian borrowers, including some Canadian municipalities, may turn to the United States market for the funds which they require. The very close and intimate relationships which exist between the economies of the two countries have been discussed in Chapter 3 and in the separate study, *Canada — United States Economic Relations*. Whether in these circumstances it would be possible for us for long to pursue an entirely different course in our monetary policy from that which is being followed in the United States is an open question. Our monetary policy has differed from that of the United States on occasion both in the matter of timing and in the degree and emphasis which it has placed on restraining or encouraging economic activity from time to time. It has never followed an entirely opposite and different course, however, for any extended period and we are inclined to think it would be very difficult for this to be done effectively. So far, however, there has been no call for this. Economic conditions in Canada and the United States have not differed very greatly and as a result more or less similar monetary policies have been appropriate in both countries.

There is one other special situation with which the operation of monetary policy has to contend in Canada which we should refer to very briefly. The working of monetary action may be hampered in its application and effectiveness to some extent by the lack of control over the operations of instalment finance companies which play such an important role in modern merchandising, and of small loan companies. The policies of these concerns in times of inflationary pressures may be directly opposite to those which the central bank is trying to promote through the operations of the commercial banks. In the past, in times of emergency when inflationary

pressures were very severe, the operations of instalment finance companies have been subjected to direct controls; minimum down-payments and maximum periods for the repayment of instalment credit contracts have been established. Such direct controls would, of course, require action by Parliament.

Another type of direct control which could be used if necessary would be the screening of certain types of borrowing or financing, with some categories of borrowers exempt and all borrowers exempt under a certain size. Limiting the amount of certain categories of borrowing in this way could reduce inflationary pressures and at the same time make it somewhat easier for those to borrow who were not affected by the control. However, such a policy would require that some governmental body exercise discretion in adjudicating the claims of competing borrowers in order to achieve a different result from that produced by the impersonal processes of the market.

We do not propose to discuss the workings of the more all-embracing schemes of price and wage controls and rationing which can only be justified in periods of extreme emergency. These require a large administrative staff and a high degree of compliance and co-operation from business and consumers. Such schemes should not in our view be regarded as proper or practicable methods for restraining the kind of inflationary pressures which are likely to arise in times of peace.

As we have already stated, monetary action by itself should not be expected to do the whole job of controlling inflation if it is persistent and substantial in its proportions. It is here that monetary policy should be joined and co-ordinated with fiscal policy, particularly with tax policy and with debt policy. One major difficulty in using tax policy as an instrument in combatting inflation is that changes in taxes are not usually made more often than once a year at the time of the annual budget. Furthermore, tax changes, some of which for administrative reasons may not become effective immediately, must be based on forecasts of the economic outlook made weeks or months earlier and for the 12 months ahead. Under such conditions it is difficult to keep fiscal policy very closely or precisely in tune with constantly changing economic conditions. In addition, as we mentioned earlier, there is a considerable lag between the announcement of tax changes and the time when the effects of such changes begin to make themselves apparent. And quite apart from this, there is a natural and proper reluctance on the part of those in authority to tinker too much with the tax structure or to make changes indiscriminately. Monetary policy on the other hand is much more flexible because changes can be made frequently and at any time and the impact of such changes is felt immediately.

Some of the difficulties referred to of using tax policy to complement action in the monetary field were well summarized in a paper to the American Economic Association by Professor J. J. Deutsch, who for several years was Assistant Deputy Minister of Finance and Secretary to the Treasury Board:

“The fiscal instrument has further disadvantages because it is not sufficiently flexible and because opportunities for changes tend to be governed quite strongly by the timetable of democratic processes. The timetable regarding parliamentary sessions and elections may or may not coincide with developments in the economic scene. Likewise, the expenditure side of the budget is subject to the influence of external events and social forces which at any particular time may dominate the budgetary situation. On the other hand, the very large budgetary surpluses which may be necessary for an effective counter to inflation undoubtedly weaken the traditional parliamentary procedures for the maintenance of economy in the operations and functions of government. In brief, fiscal measures in most countries are more directly and more immediately related to the ‘stuff’ of politics, than is monetary policy.”⁶

Despite these difficulties and reservations, it may be necessary in the future to make greater use of fiscal policy as a complement to and in co-operation with monetary policy if a serious threat of inflation should arise and should persist. There is no really fundamental reason for example why budgets should not be introduced more often than once a year and in fact this has been done on a number of occasions. But whatever the difficulties may be, the fact remains that fiscal and monetary policies should be used in concert rather than separately when the occasion so demands.

In periods of strong inflationary pressures, debt policy as well as fiscal policy should be reconciled and co-ordinated with monetary policy. In such periods, as we have said, governments should budget for surpluses. But the surpluses obtained should not necessarily be used to reduce government debt. If members of the public are induced to sell their government bonds, the supply of cash in the public's hands will be increased. And this may be contrary to the purpose of budgeting for surpluses in times when the rate of economic activity is very high and inflationary pressures are severe. If the government reduces its own bank balances to buy bonds from the public it may itself be adding to such pressures. This matter is referred to in more detail in *Financing of Economic Activity in Canada*.

In the chapter on secondary manufacturing we suggested that this sector of the economy could be encouraged and the industries in question made more efficient if they were allowed greater freedom in amortizing their capital expenditures on new machinery, equipment and factory buildings. But clearly this suggestion should not be implemented at a time

when the central bankers are trying through the operations of monetary policy to restrain the rate of economic activity.

On the other hand, if inflationary pressures should become severe as a result in part of rapid expansion by the resource industries a case could be made for the cancellation insofar as new developments were concerned perhaps only temporarily, of the special tax incentives which such industries enjoy. An even stronger case should be made for such a change if it were believed that these industries, because of rapid expansion, were approaching a stage where there might be some excess capacity of their productive facilities.

Similarly an appropriate time to introduce the various suggestions we have made for moderating the influence which Canadian subsidiaries of foreign concerns have upon the economic life of this country would be during a period of strong inflationary pressures. Under such conditions, if the measures suggested resulted in even a slight and temporary slowing down in the inflow of foreign capital and of the expansion it brings forth, the effect would be beneficial.

As we have said before, we believe that preventing unemployment and avoiding inflation will be the major problem for our governments in the field of domestic policy in the future. When we say this we mean, of course, that preventing any substantial degree of unemployment and avoiding any appreciable measure of inflation will be the major problem for the Federal Government and its prime responsibility in the domestic field. If the power and influence of the federal authority should be seriously weakened through a series of extended conflicts with the provinces or as a result of voluntary abdication of responsibility by the Federal Government the results in the long run might prove to be very serious indeed. Responsibility for preventing any substantial unemployment and for controlling inflation cannot successfully be distributed among ten provincial parliaments. Those who believe as we do that this twin objective is of cardinal importance will wish to see that the federal authority is kept strong enough to shoulder its responsibilities effectively in this difficult and complex field.

As we said earlier, if a serious degree of unemployment should occur or should be threatened, governments at all levels will be expected to step up their expenditures considerably. Similarly, if there is severe inflation or the threat of it, governments at all levels should curtail expenditures. This is the theory of cyclical budgeting which, of course, if it is to be really effective should apply to the combined total of all government expenditures and revenues at federal, provincial and municipal levels and not just to those of the federal authority. This is more easily said than done in Canada.

In Canada the only restraint which can be brought to bear upon the level of expenditures at the provincial and municipal levels is through

monetary action and through the by no means exclusive control which the federal authority has over certain fields of tax revenues. Such restraints may prove quite insufficient if inflationary pressures get too strong. No doubt in such event provincial and municipal authorities will be exhorted to reduce expenditures and slow down the rate of their various activities but how effective exhortation by itself would be is questionable, to say the least. This is a real problem for the future and as such it is our duty to report it even though we are not able to suggest how it should be resolved. The answer does not lie in weakening the federal authority, of that we feel quite certain. The problem of ensuring a high level of employment throughout the country without inflation will not be solved in our opinion if it is left to ten provincial governments and their municipalities to deal with independently.

One thing that could be helpful would be quicker publication of current statistics. We have been impressed throughout our work by the extent and the quality of the statistical material which is compiled and made available to the public by the Dominion Bureau of Statistics. And we acknowledge gratefully the help we have been given by the Dominion Statistician and by his staff. Not unnaturally, however, the Bureau, which is part of a department of the Federal Government, is not encouraged to publish tentative figures and approximations quickly. There is the danger that such tentative figures and approximations may have to be amended and that the Bureau or the Government will be criticized if this is so. But we believe it will be important in the future to encourage more members of the public, particularly those in university, professional and scientific circles, in finance and business, in organized labour, in farm groups, etc., to follow closely short-term movements in the economy and to express their opinions on current policies. Only in this way can those who are in places of authority receive the benefit of fresh and varied points of view on current questions which affect the smooth working of the economy. Authorities in the United States are much better served in this respect than are government leaders, civil servants and central bankers in Canada. This is made possible in the United States not only because of a seemingly greater willingness on the part of private citizens in that country to speak out on public issues but also, to some extent, because of the earlier publication of some current statistics in preliminary form. We think the same thing is needed here. More public discussion and debate about current issues in Canada would be bound to be helpful, providing the participants were reasonably well informed. This they cannot be without prompt information about current trends. What we have just said should not be interpreted as a criticism of the Dominion Bureau of Statistics. The work which has been done by the Bureau in the last decade or so has been of the first order of importance. But this work which has contributed so effectively to the improvement in the quality and variety of our economic statistics ought to be encouraged in every possible way. Such

encouragement in this case means more money, more qualified staff and more co-operation from the business public.

Governments are large and complex institutions which are divided into numerous departments, crown companies and agencies. It is to be expected, therefore, that occasionally there may be honest differences of opinion between officials in the different departments about the probable level of economic activity in the future, depending in part at least upon the particular responsibilities and interests of the departments in which such officials serve. It would be unnatural if this were not the case in any government in any country or in fact in any large institution anywhere. The Council of Economic Advisers to the President was established in the United States some years ago in an attempt to resolve conflicting opinions of departmental officers about economic trends and conditions and the need for action to prevent unemployment or to control inflation. The Council is responsible to the President but its reports are published and are of great value to the public as well as to the Chief Executive. In Canada a corresponding role may now be filled to some extent by the officials of the Privy Council office who report directly to the Prime Minister. These officials work closely, intimately and we believe almost always most harmoniously, with the senior officials in all government departments and in the Bank of Canada. However, as civil servants in our governmental system, their role must be a silent one. Their anonymity is a source of strength in many ways and they cherish it accordingly. It would be quite improper for them to publish reports or make public their opinions about the impending dangers of unemployment or inflation, and the measures which should be taken in the circumstances. We believe it might be helpful if a body of economic experts were established whose function it would be to inform the government of changes which might be thought desirable in economic policy in order to ensure a high level of employment without inflation. One responsibility of this body would be to publish annual or semi-annual reports for the general information of the public. The success or failure of such an innovation would depend of course very largely upon the good judgment of the men who might be chosen for the task and also upon their reputations for objectivity and hence the confidence which the public would be likely to have in their opinions.

One thing that we hope will be apparent from this discussion of the instruments which are available to government for preventing unemployment on the one hand and inflation on the other, is the great need for more research into the workings of the business cycle and the ways in which its fluctuations can be evened out. At the same time, there is need for a great deal more study regarding the operation and results of the various measures which can be taken in the fields of fiscal and monetary policy. We would hope that our universities among others will consider

that research work in these areas should be one of their most important and continuing responsibilities.

Promoting Economic Growth

We have made suggestions in preceding chapters which will affect the extent and character of growth in certain sectors of the economy or of the income levels of people who are engaged in certain industries or who are located in particular areas. There are other fields of governmental policy which apply more generally to the growth and development of the economy as a whole and which are bound to affect Canada's long-term economic prospects. There is, for example, the tariff and commercial policy; there is our need for trained manpower of every sort in this increasingly technological and scientific age; and there is the great importance of research. These are the questions we shall discuss in the following pages.

The Tariff and Commercial Policy

Canada has always had a protective tariff and the separate colonies had protective tariffs even before Confederation. There is nothing singular about this. It would be strange if it had been otherwise. It was, of course, to the very great advantage of Great Britain and France to adopt free trade in the nineteenth century because they were the first countries to supply the new techniques of the Industrial Revolution on a large scale and thus their industries were able to compete successfully with those of other nations in all the markets of the world.⁷ But other countries, including Germany and the United States, which had aspirations of becoming industrial nations, established protectionist policies in the nineteenth century because they did not believe their industries otherwise could flourish or survive. Whether or not they were correct in this belief is somewhat academic now. The fact is that protectionist policies were introduced and national economies were developed along certain lines. Now, all industrial nations have protective tariffs and Canada is no exception. There have been fluctuations in the level of protection in Canada over the years but, with few exceptions, these fluctuations have not been very pronounced one way or another.

However, while we have always had tariff protection in Canada, while the fluctuations in the level of such protection over the years have not been very great and while it seems apparent that tariff protection at some level will continue, this does not mean that people have ever found this an easy subject to discuss quietly and objectively. The tariff was a political issue in this country for generations and as such could be relied upon to stir regional interests, feelings and antagonisms. And while in fact the level of the tariff may not have fluctuated so very much over the years

this did not inhibit arguments in favour of free trade or of protectionism. However, this clear-cut issue of former times is no longer quite so white or quite so black as it may have seemed to some of the protagonists of the past. Many influences have been brought to bear which in the aggregate have tended to blur the outline at the edges. The distinctions between the interests and the points of view of people living in different parts of Canada are not quite so sharp as they once were. As the economy of certain areas which at one time were dependent solely on export trade become more diversified this trend may be expected to continue. Farmers are beginning to obtain some measure of insurance against violent fluctuations in their incomes, including a degree of protection against importations of agricultural products. Manufacturers, on the other hand, have managed to survive and prosper despite a considerable reduction in the tariff since the end of the last War. And some industrialists are now advocates of free trade. While the cost of the tariff bears more heavily on some areas which have little secondary manufacturing industry than on others, the distribution of government revenues and some other deliberate measures of government policy, including subsidy payments, have substantially offset this disparity in recent years. Furthermore, and of the greatest importance, as incomes rise the effect of the apparent cost of the tariff becomes relatively less significant and relatively less burdensome. This trend also seems likely to continue. Because of these various trends and influences, or partly because of them, the tariff does not seem any longer to be quite as controversial an issue as it used to be.

Canada has played a leading part since the Second World War in tariff reductions, in international efforts to bring about a general reduction in tariffs and other trade restrictions, and in promoting a greater degree of freedom of trade on a multilateral basis. Both the average rate of duty collected on dutiable imports and the average rate of duty collected on all imports into Canada have been reduced by approximately 25 per cent since 1939. Such percentage comparisons may tend to exaggerate the actual measure of the reduction in protection which has taken place during the period. On the other hand, the percentages themselves do not reflect the decline in the real degree of protection which has occurred as a result of changes in the form and administration of the customs tariff in recent years, including for example changes in the law respecting "dumping". Certainly the reduction in protection which has been afforded to the textile and machinery industries since the War has been substantial and the reductions in the case of certain other industries have not been inconsiderable. The average level of the Canadian tariff is now appreciably below that of 1939; it is also below the levels of the late 1920's. The tariff levels of the late 1920's are generally thought to represent a slight decline from those prevailing during the decade prior to the First World War and those, in turn, a decline from those existing in the 1890's

and the 1880's following the introduction of the National Policy in 1879. In other words, the present level of the Canadian tariff is lower than it has been for nearly 80 years.

It is not possible to make exact comparisons of the level of protection or of the quantitative effects of tariff restrictions in different countries. It is a fact, however, that Canada's economy is a relatively open one compared with that of other nations which have an important industrial base. This is borne out by the fact that the ratio of imports and exports of goods and services to Gross National Expenditure is relatively high in Canada: 26 per cent and 21 per cent respectively in 1956.

There is no satisfactory way of measuring or estimating the true cost of the Canadian tariff in economic terms. It is possible to make comparisons of the prices of goods in Canada with world prices and to estimate what the differences attributable to the tariff amount to in total for all expenditures in this country. A comparison of this kind which was made by members of the Commission's staff and which purports to show that the differences in total might amount to perhaps 3½ per cent of the Gross National Product is of some interest. But this is very different from an estimate of the true economic cost of the Canadian tariff. Many assumptions, the validity of which would be open to serious question, would be necessary in any such calculations. We do not believe that discussion of the way in which the Canadian economy might possibly have developed in the absence of tariff protection can help very much in this connection. There has been tariff protection and the Canadian economy has developed in a certain way partly because of this. It may be more interesting to speculate about what the long-term results would be if the present tariff protection was removed. But we are doubtful if speculation along such lines will prove very fruitful either. Canada is now an important industrial nation. More than 25 per cent of the total working force is employed in manufacturing; 20 per cent is employed in secondary manufacturing. The expectation is that about the same percentage of an increasing labour force will be so employed in the future. Whatever the long-term results of the complete removal of the tariff might be, the short-term dislocations and upheavals would be tremendous. Such a course, therefore, is not likely to recommend itself to any government concerned with the problem of maintaining a high level of employment. Nor do we think that it should do so.

Similarly, there is no satisfactory way of measuring or evaluating the advantages the nation gains from having domestic manufacturing industries which provide it with assured sources of supply for many commodities and which give the economy a measure of diversification and thus a greater degree of stability than it might otherwise enjoy. It is worth remarking that it may be just as unwise for an economy as for an individual to become

too specialized in this present age. An economy with too narrow a base is more vulnerable to technological changes, the pace of which is very fast nowadays, and thus could find itself in serious difficulty.

While, therefore, it is not possible to determine the true economic cost of the tariff in its entirety, and while there is no way of evaluating the advantages to the economy of some diversification of industry, we believe it can be stated with confidence that moderate increases or decreases in the tariff would not have any appreciable effect upon the average standard of living in Canada. More than a moderate decrease in the tariff would not seem to be a practical consideration for the reasons we have mentioned. Any substantial increase in the tariff would, we believe, be equally unwise; such a course not only would result in higher prices for consumers but might bring about retaliatory action by other countries against Canadian exports. It is within these rather narrow limits, therefore, that we shall proceed with the discussion.

In considering the "Prospects for World Trade" in Chapter 4, we arrived at the reluctant conclusion that the impetus which has been given by the United States to a policy of freer trade is now virtually exhausted. We expressed the hope that in the long run effective efforts will again be made to re-establish a more liberal system of world trade. But while we may hope that the international atmosphere in these matters will change in time, it would not in our view be realistic to count upon this happening in the more immediate future. One reason for this is that governments of most countries are now more concerned than they used to be with policies designed to maintain high levels of employment. Such policies can be pursued only at the national level and thus may run counter to measures which would otherwise tend to increase trade internationally. It is true also, as we have previously suggested, that as a country becomes industrialized and as its national income rises, the increased costs of providing it with some diversification of industry and thus with a greater degree of stability in times of stress become less noticeable and, in relative terms, less of a burden. These considerations tend to modify and counteract to some extent, in the minds of those responsible for the policies of the nations, the arguments in favour of freer trade and a greater degree of international specialization. However, we would not wish to seem too pessimistic about the prospects for freeing international trade. Proposals for a free trade area in Europe are evidence that the desirability of removing trade barriers have not been forgotten everywhere despite the preoccupation we have mentioned with other issues.

As we have pointed out in a previous chapter, our exports to the United States have increased very considerably in the last 20 years and it seems likely they will keep on increasing in absolute dollar terms. For the most part such exports consist of materials which Canada has in

abundance and which the United States may become increasingly short of in the years ahead. In relative terms expressed as a percentage of Gross National Expenditure, our exports of goods and services to the United States have about held their own; from 15 per cent in 1937 and 13 per cent in 1938 to 13 per cent in 1956. Even when measured as a percentage of a greatly increased Gross National Expenditure in the future our exports to the United States may continue to about hold their own in relative terms. Our exports of goods and services to all other countries, on the other hand, have become relatively less important as a percentage of the total output of the economy. Measured in this way they have declined from 15 per cent of the Gross National Expenditure in 1937 and 13 per cent in 1938 to 8 per cent in 1956. We would expect this percentage to keep on falling in the years to come although perhaps at a slower rate.

In the light of these various considerations, we do not believe it would be wise for Canada to embark upon any general programme of tariff reduction on a unilateral basis. In fact, if our predictions about the nature, extent and direction of Canada's export trade are borne out by events, there may be less reason in the future for Canada to make concessions in the realm of commercial policy than there has been in the past or than there would be if our exports were or could reasonably be expected to be distributed more evenly over the countries of the world. In the meantime it would seem sensible for this country to hold the tariff line on the average at about its present level.

At the same time we should attempt to straighten out some of the anomalies which exist in the present tariff and to simplify the whole tariff structure as much as possible. No tariff is, or can be, constructed on a truly logical or scientific basis. But if we are going to have a tariff at all, and that seems both obvious and necessary in a practical sense, we might as well make it as tidy and as orderly as possible. It should also be reasonably flexible in the sense that we should not hesitate to amend and revise it as occasion demands from time to time. In fact, we would advocate a more or less continuing re-examination of the tariff having in mind continually changing industrial conditions, products and technology. In this connection if, as we believe, the best policy for Canada is to hold the present tariff levels on the average for the time being, any general revision of the tariff schedules will involve adjustments up as well as down in individual rates. In many cases, such revisions would require international negotiation. While not expressing any views on the details of the various agreements by which international trade is currently regulated, we are firmly of the opinion that efforts to promote a stable commercial regime in the international field, under which adjustments can be made in an orderly manner, are very much in Canada's interest.

The task which would be involved in any general revision of the Canadian tariff would be an extremely large one and to be successful it would need to be carefully planned and organized. Before the examination and revision of each section of the tariff is commenced, the Government should instruct those responsible for such examination on the objectives or criteria which should govern them in their review. Such criteria might differ depending upon the industry or section of the tariff under study, and perhaps depending to some extent upon the prevailing conditions of the day. The kind of criteria we have in mind, one or more of which might be applicable in some cases but not necessarily in others, would include such things as the number of people employed in the industry and those dependent upon it directly or indirectly; the relative stability of such employment and the alternative opportunities in the areas where the industry is located; the level of the rates of duty and the effect of such rates on consumer prices and on industrial costs; the reliability of alternative sources of supply; and our surplus or deficit on current account with the country or countries in which alternative sources of supply are located. This list is intended to be illustrative rather than comprehensive in its coverage.

As we pointed out in Chapter 12, the greatest handicap of Canadian manufacturers is their inability to take advantage of the economies of large-scale production to the same extent as may be done in some other countries, particularly the United States. One important objective in any re-examination of the tariff should be to design the tariff schedules in such a way that Canadian manufacturers would be encouraged to specialize on large volume lines and, if necessary, to discontinue production of small volume lines. If it were possible for manufacturers in this way to simplify their production programmes to some extent, their costs and, consequently, their selling prices should be reduced. Every effort should be made to reduce the number of separate items in the tariff and to eliminate wherever possible both "end use" items and items "of a class or kind not made in Canada". We suggest this in the interests of simplicity and because such items call for the exercise of a high degree of administrative discretion, the uniform application of which may be difficult to achieve. But care should be taken that any changes which are made with this as the objective do not result in any material alteration in the general level of the tariff either up or down. Again in the interests of simplicity, new "end use" items and items "of a class or kind not made in Canada" should be made sparingly and only in exceptional circumstances. In the case of tariff schedules to be established for new industries or new products, those responsible for the examination should be instructed to take into account both the economic desirability of the new industry or product in terms of the Canadian economy as a whole and the possibilities of such industry or product being able to prosper without tariff protection or with a lower rate of protection once it became established.

If the proposed examination and revision of the tariff were to be undertaken by the present Tariff Board, which would seem logical, that body would need to be strengthened quite considerably. To be specific it should be provided with an enlarged research staff competent to deal with the many and complicated problems that will be encountered. It might also be desirable to relieve the present Tariff Board of its responsibility for hearing appeals under the Customs Act and the Excise Tax Act.

Many submissions were made to the Commission during the course of its public hearings on the subject of "dumping". It is probable that this term is often used rather loosely and that at times it is applied to importations of goods at perfectly *bona fide* prices. At times in the past, in other cases, some domestic manufacturers would seem to have had justifiable cause for complaint about the value placed on imported goods for duty purposes. Prior to 1948, "dumping duty" could be levied if goods were imported at less than their cost of production, plus a reasonable percentage to cover the costs of distribution, overhead and profit. This left considerable discretion in the hands of the officials responsible for administering the customs legislation. It is alleged by some that customs appraisers were more critical in their examination of values prior to 1948 than has been the case since Canada became a signatory of the General Agreement on Tariffs and Trade and since the amending legislation was passed. It is a fact that the amount of anti-dumping duties has declined very considerably in recent years as a percentage of the total amount of duty collected. In this connection it should be emphasized that the Customs Division of the Department of National Revenue has not a sufficient number of qualified investigators to do any appreciable amount of policing of values. If there have been cases of dumping, therefore, in the legitimate sense of the term, it has not been the fault of the relatively few officials employed on this phase of the work of the Department.

Established Canadian industries and the people employed by them should be safeguarded against importations of goods at dumped prices. Predatory dumping is most likely to take place at times when industry in the exporting country is operating, or in danger of operating, at less than capacity and thus is under pressure to find markets for additional production in order to increase or maintain the volume of its output. Special efforts to enforce the anti-dumping legislation should be made in such circumstances. With this in view, the Commission suggests that the Customs Division of the Department of National Revenue be authorized to recruit whatever staff may be required to investigate adequately this question of values for duty purposes. There should be no hesitation to use promptly the authority provided in the recently amended Section 35 of the Customs Act in order to prevent the dumping of goods from abroad at less than their fair market value. If the section referred to proves inadequate for this purpose, it should be strengthened.

It was represented to us that in some circumstances it might be necessary to take action to safeguard established Canadian industries threatened by a flood of imports at devastatingly low prices from countries where social conditions and the organization of production and trade are vastly different from those which prevail in Canada. Political instability in some parts of the world may contribute from time to time to difficulties of this kind. Safeguards might be particularly necessary if the prospective source of supply should not appear to be a reliable substitute for domestic production over the long term. In this connection it is worth noting that several recent trade agreements entered into by Canada include an escape clause against just such contingencies.

From time to time some Canadians are inclined to speculate about the possibilities of some broad measure of reciprocity with the United States, the objective of which would be to eliminate the restrictions on trade between the two countries. There is no reason at the present time to believe that United States authorities would be receptive to any such proposal, particularly if it implied the free entry into that country of the products of Canadian agriculture and fisheries at a time when there were very substantial surpluses of such products existing in the United States. It is quite possible, however, that the attitude of United States authorities will change at some time in the future as the United States becomes increasingly dependent upon importations of industrial raw materials including importations of such materials from Canada and, perhaps, as United States investment in this country grows. But quite apart from the reaction of the United States to any such suggestion, it may be well to remind ourselves that Canada is now an important industrial nation and, as previously stated, one-fifth of our total working force is employed in secondary manufacturing industries. Some Canadian industries might prosper if they had free access to the American market but many others would probably not be able to survive in their present form or on any appreciable scale. Under these circumstances it follows that any system of complete or even substantial reciprocity with the United States would entail an upheaval in the lives of a great many people in this country who would of necessity have to find employment in other occupations, in the United States if not in Canada.

It may be well to remind ourselves also that while inability to obtain access to United States markets played a part in the decision to introduce a greater measure of protection in the Canadian tariff in 1879, Canadians of that day did not believe a separate nation could be maintained on the northern half of this continent unless deliberate steps were taken to promote industry here and to stimulate a movement of trade on an east-west axis. Such political considerations have always tended to overshadow economic ones when major changes in our tariff structure have been in contemplation. In the past, Canadians for the most part have considered

that the economic cost of the tariff whatever it may have been, was a legitimate price to pay for national independence. As we have said before, the cost of the tariff has become relatively less burdensome and it will continue to become relatively less burdensome as our national income rises. The price we pay in this way for national independence is now much less than it used to be.

In view of what has been said in the preceding paragraphs, broad reciprocity with the United States, in the opinion of the Commission, cannot now or in the foreseeable future be regarded as a practical proposition. This does not mean, however, that we should eliminate completely any thought of reciprocal arrangements of more limited scope with the United States, or with other countries, which may be consistent with Canada's international obligations.

The Needs for Trained Manpower and Research

The Canadian economy must accommodate itself continuously to the conditions of a highly competitive world in which the pace of growth and development will be determined largely by the ability to use the fruits of scientific research and technological improvements. The free flow of scientific and technical information between countries is in the interests of all. Canada has gained and will continue to gain from the process. But the rate of growth in Canada would be retarded if Canadian industry were to rely to too large an extent on innovations originating in other countries. In our own interest we must make a significant original contribution to technological advance. This means expansion of support for research and of the numbers of qualified research scientists, and an adequate supply of the skilled workers necessary to apply the new knowledge and techniques.

Our forecasts of industrial growth, including expansion in the service occupations, involve a continuously increasing flow of new workers with required skills. Over the period 1955 to 1980, we expect an average annual increase in the labour force of about 175,000 per year; it is estimated that employment in the resource industries (not including agriculture) will increase at the rate of about 10,000 per year; in construction about 10,000 per year; in manufacturing, primary and secondary combined, about 40,000 per year; and in the service occupations, about 115,000 per year. We have pointed out elsewhere that we expect the fastest growing secondary manufactures to be electrical apparatus, electronics and chemicals, followed by primary iron and steel, industrial machinery, oil refining, rubber products, and non-ferrous metals products. These are all industries which will require a high proportion of skilled workers. The service occupations include in order of the numbers employed at the present time, the distributive trades, professional services, personal services, government services, and finance. These are all occupations which will require a

high level of general education, and in many cases extended specialized training.

It is not possible to predict, with any degree of accuracy, the growth over twenty-five years in the demands for different categories of workers. We have assumed that along with some net immigration, the total numbers of young people coming forward into industry will be sufficient to meet the total demand, and that in some way they will acquire the necessary skills to sustain the rate of economic growth we predict. The required skills will be of many different kinds, and the proportions in which they are required will change from time to time. Some old skills will disappear, and new skills will emerge. The rapidly changing demands of industry will call for workers with a high capacity to adapt themselves to new job requirements, and for frequent retraining. We can also be sure that the demand for skilled workers will increase more rapidly than the demand for unskilled workers.

From time to time particular shortages will be met by immigration and by retraining of Canadian workers. However, for the requisite numbers we will, in the long run, have to rely on the education and training of Canadian youth either in industry or in the formal educational system.

During the period 1941 to 1948, again in 1951, and more recently in 1956, there were acute shortages of skilled workers in Canada. In the period 1952 to 1955, the greatly increased immigration of skilled workers in the previous years assisted materially in meeting the demands. The net immigration (after deducting emigration to the United States) of skilled workers since the end of the War has been as follows:

Table 20. 1

ESTIMATED NET IMMIGRATION OF SKILLED WORKERS (1946-56)

	Immigration	Emigration to United States	Net immigration
1946.....	2,172	1,177	995
1947.....	6,983	1,400	5,583
1948.....	12,995	1,491	11,504
1949.....	7,763	1,335	6,428
1950.....	5,106	1,400	3,706
1951.....	27,726	1,784	25,942
1952.....	19,011	2,572	16,439
1953.....	17,663	2,963	14,700
1954.....	18,287	2,733	15,554
1955.....	10,990	3,494	7,496
1956 (est.).....	11,600	3,500	8,100

SOURCE: *Skilled and Professional Manpower in Canada, 1945-1965, 1957*, a study prepared for the Commission by the Economics and Research Branch, Department of Labour, Ottawa, Chap. 3, Table 21.

We have discussed the general prospects for immigration in Chapter 6. It is our view that the flow of intercontinental migration in the future is likely to be reduced; and that, for a number of years, unless there continue to be unusual movements stimulated by political events such as occurred in 1957, net immigration of skilled workers may not exceed an average of 8,000 per year. However, assuming there is no slackening of economic growth, lack of native-born entrants to the labour force will require continued immigration, with the customary high proportion of skilled workers, up to and beyond 1965.

While efforts should be made to encourage skilled workers to migrate to Canada, it seems improbable that we will be able to meet the increasing requirements of skilled manpower from immigration in the future, as we have done in the recent past. It is, therefore, important that increasing numbers of young Canadians coming into the labour force be trained to perform the growing number and variety of tasks requiring substantial degrees of skills. Unfortunately, although the number of Canadians entering the labour force will increase substantially over the next ten years, there may not be enough young men and women enrolling in training programmes to meet the demand. The varied skills required by industry and the service occupations may be obtained in a number of ways. Each of these avenues will have to be more fully exploited if adequate numbers of trained persons are to be assured.

More complex industrial processes and relationships and the necessity for adaptability in a rapidly changing economy will require a higher level of general ability. We must expect to achieve this through the educational system. Of the pupils entering Grade I, 80 per cent do not now complete junior matriculation and 90 per cent do not complete senior matriculation. The level of education reflected in these figures will not meet the requirements of the future. We must accommodate ourselves to a continuous expansion of school facilities first, because of increasing numbers of young people, and second, because of the necessity of providing a larger proportion of them with a more extended period of schooling. The rapid increase in the birth rate which occurred after the Second World War has made necessary heavy public expenditures on school buildings and has contributed to the familiar shortage of teachers. The pressure of numbers was first felt in the elementary schools, and later in the junior high schools. The wave of increased numbers has now reached the senior high schools, and by 1960 its effect will be evident in admissions to universities. However, the growing pressure of numbers on educational facilities at all levels is not a passing phenomenon. If our population estimates are anywhere near the mark, the wave will not subside; it will rather prove to be the initial impact of an increasing flow of young people. We expect that between 1955 and 1960, the number of young people up to and including 19 years of age

will increase at a rate not much short of 200,000 per year; and that the annual average increase in this age range between 1955 and 1980 will be about 160,000. As we pointed out in our reference to school facilities in Chapter 15, "Present-day enrolment in secondary schools is equivalent to just over 50 per cent of the population of 14 to 17 years of age, inclusive; by 1980, the proportion may be 70 per cent". If these expectations are even approximately correct there will be a steady and substantial increase in the total demand for educational services — a demand which must be met if we are to provide industry with its requirements.

Particular skills can be acquired and abilities developed by on-the-job experience, and this will remain an important means of obtaining the skills required. However, the tendency has been toward increasing emphasis on formal institutional training for the acquisition of particular skills, and the trend is likely to continue. Apprenticeship training programmes will have to expand, and more facilities will be required to increase the flow of qualified tradesmen. Governments may be expected to play an increasing role in fostering in-plant or apprenticeship training programmes; but it is to be hoped that skilled tradesmen's organizations and companies will themselves support the further development of these training techniques. There is evidence that some larger companies are becoming concerned about this problem and have instituted formalized training programmes of their own.

The development of new and more advanced techniques is adding to the demand for skilled technicians and creating new technical occupations at the semi-professional level. Existing technical and vocational training facilities and institutions should be expanded and new ones added. A large portion of this will occur as part of general programmes of high school expansion. But, in addition, it is important that more technical training schools for high school graduates be established. The advantages of post-high school training are that it gives young people more time to make up their minds about a career, that it is more suitable to highly specialized training (e.g., electronics) which requires some grounding in science and mathematics, that it will help to relieve the pressures of the universities to give what are, in effect, technical training courses, and that training at this level is likely to be more intensive and efficient than at the high school level. Good technical education in a formal sense has become a necessity because of the technological changes that have taken place in recent years, and it is imperative that the present facilities for such education be greatly expanded.

The universities are, and will remain, the principal source of professional workers in this country; and university graduates will be required in increasing proportion to the total labour force.

Post-war enrolments in Canadian universities reached a low point in 1951-52. By this year most of the student veterans had graduated, and admissions reflected the normal movement of students through the high schools, which was influenced by the low birth rate of the pre-war years. Total undergraduate enrolment was less than 60,000, and the number of graduations less than 15,700. Since 1951-52 admissions and enrolments have been increasing, at first slowly but recently at an accelerating rate. The causes of the increase include immigration, a higher proportion of Canadian students completing high school, and a higher proportion of students who have completed high school entering university. By 1955-56, enrolments had increased to 68,300, but graduations reflecting the declining enrolments of the previous years had decreased to about 11,900. Graduations began to increase in 1956-57. It has been estimated that total enrolments in 1957-58 will have reached 78,700, and graduations in 1958 will number some 13,400. However, the whole period from 1951-52 has been one in which there have been continuing and widespread shortages in the supply of university graduates, which has failed to keep pace with the demands of a buoyant economy.

As we look to the years immediately ahead we can expect a rapid increase in university enrolments and graduations. By projection of the trends it is estimated that the annual increase in enrolments will grow from 4,900 in 1957-58 to 8,500 in 1964-65, and that total enrolments in universities and colleges will reach 126,500 in the latter year. It is also estimated that graduations will increase from 13,400 in 1958 to 21,300 in 1965. With reference to this period (1958 to 1965) the study *Skilled and Professional Manpower in Canada, 1945-1965* concludes: "Comparing the outlook for professional workers with probable supplies, it appears likely that shortages of varying degrees will continue in many fields until about 1960, apart from the effects of any temporary slackening in economic expansion during these years. After that time, however, growing requirements and new supplies may come more closely into balance." The increases in numbers we anticipate are at a rate which will double enrolments and graduations in 12 years, and yet there is every reason to believe that the economy will prove capable of absorbing the increased numbers without difficulty.

The impending growth of university enrolments will require a substantial programme of planning and construction of physical facilities in advance of actual enrolments. Considering the whole period to 1980 we have estimated that an average of \$40 million per year will be required for capital expenditures. Immediate requirements, and requirements for the next few years, will exceed \$40 million if the universities are to be ready to meet the upsurge between now and 1965. University operating expenditures, at least in the short run, will have to increase more rapidly than student numbers. It is reasonable to assume that if the quality of

instruction in universities is not to deteriorate, the ratio of instructors to students must be maintained. Indeed, if Canadian universities are to carry the responsibility of an increasing volume of graduate studies now provided by institutions in the United States, the ratio of instructors to students will have to increase. Salaries of academic staff constitute the major portion of instructional expenditures. If the quality of the academic staff of Canadian universities is to be maintained, immediate increases in salaries are necessary, and an effort must be made over the longer period to keep university salaries in line with those obtainable in alternative occupations requiring comparable qualifications.

The publication of the Dominion Bureau of Statistics, *Salaries and Qualifications of Teachers in Universities and Colleges, 1956-1957*, summarizes the returns from 51 Canadian universities and colleges. In 1956-57, the median salary for 3,954 full-time academic staff was \$5,775; and three-quarters of the number were receiving salaries of less than \$7,000 per year. The median salary for staff between the ages of 25 and 30 years was \$4,423; and for staff with 5 to 10 years experience after receiving their first degree, the median salary was \$4,793. Some increases in salary schedules have recently been made. But it is clear that the level of salaries which has prevailed for some years, and as it now stands, offers little inducement to embark on an academic career under the competitive conditions of today.

As we said in our *Preliminary Report*:

"If salary scales are increased substantially, and if the whole status of the university teaching profession in Canada is raised and improved, it should become increasingly easier to persuade young Canadians of high quality to enter the teaching profession. Furthermore, it should be possible for Canadian universities to attract to their ranks Canadians and others who are at present teaching in United States colleges and, in addition, a number of scientists and scholars from Europe and elsewhere. What is being suggested in essence is that a deliberate and sustained effort be made to raise the quality and standards of Canadian universities to among the highest prevailing anywhere in the world. It is perhaps not going too far to suggest that no other single course of action would be so likely to have such an important and fundamental effect upon the long-term economic prospects for Canada."

Since the War, Canadian universities have experienced difficulties in performing their functions with the funds made available to them from the accustomed sources. During the immediate post-war years when the veteran students were in attendance, the universities found it necessary, and were prepared, to improvise. Temporary accommodation was pro-

vided, and instructional loads were increased. At the same time, revenues were supported by grants from the Federal Government. After 1947-48 the enrolment of student veterans, and revenues associated with veteran enrolments, declined; but costs increased. Under these circumstances, the Federal Government, in 1951-52, instituted a plan of grants-in-aid to universities. The total amount to be distributed was based on 50 cents per head of population, and was divided among the provinces on a population basis. Although the federal grants were not universally accepted, they did materially assist in meeting the immediate financial problems of the universities receiving them, and in providing some relief to the provinces in which the receiving universities were situated. It became apparent by 1955 that the impending increase in numbers would soon add substantially to the requirements for capital construction and operating expenses. Early in 1957 the Federal Government increased the grants-in-aid to \$1 per capita, applicable in the fiscal year 1956-57. In addition, through the newly formed Canada Council, a fund of \$50 million was established to provide construction grants to universities over a period of years. The larger federal grants-in-aid, along with increased revenues from other sources, have again brought a measure of relief to the hard-pressed universities to which they are available, and to the provinces; and the construction grants will assist in the building programme required over the next few years.

We believe that the principle, now well established in Canada, of expecting those who receive the benefits of university education, and who eventually reap its financial rewards, to make a significant contribution through fees toward the cost of their higher education, is sound; and that the arrangement of the academic year, which enables students to earn currently a portion of the cost of their university expenses, is not educationally unsound and is consistent with Canadian attitudes. As we expect real incomes to increase it would seem reasonable to expect that over the long period some part of the increase in university costs should be recovered through fees. However, higher fees must reduce the incentive to undertake the investment in higher education and will eliminate those capable students lacking the necessary financial means. Fees at the present level or at higher levels must be supported by a combination of scholarships, bursaries and loan funds and, to meet the needs of increasing numbers of students, funds for student assistance must be steadily augmented.

Some of the Canadian universities rely, to a considerable extent, on donations from individuals and corporations, and we believe that Canadian universities generally should look for support from these sources. Moreover, it is to be expected that private contributions to the universities will grow. Some limited measure of assistance might be given to the universities by increasing the amount of the deductions from taxable income now allowed to individuals and corporations for donations to educational insti-

tutions. This would not mean much by way of reduction in government revenues, but might be of some importance in the case of some universities.

We do not judge it to be the responsibility of this Commission to recommend how public funds should be provided in support of universities. We do, however, feel it our bounden duty to call attention as forcefully as we can to the vital part which the universities must play in our expanding and increasingly complex economy, and to the necessity of maintaining them in a healthy and vigorous condition. The functions of the universities touch every facet of our society. Through the preservation of our heritage they maintain our way of life, and through the interest they generate in the arts, they enrich it. They enliven the perception of social processes, and contribute to the orderly development of social institutions and relations. It is incredible that we would allow their services to society in these ways to lapse or to lag. But these contributions are not our direct concern. We are concerned with the contribution made by the universities to the increase in the national productivity and wealth of the country. In relation to this aspect of the national welfare Canadian universities occupy a key position. They are the source of the most highly skilled workers whose knowledge is essential in all branches of industry. In addition they make a substantial contribution to research and in the training of research scientists.

Industrial progress results from innovations applied to the productive process. Many productive innovations come about through the alert attention of individuals to the activities in which they are engaged and to the processes with which they are associated. Individual initiative in seeking for improved methods is an essential feature of enterprising management. Its exercise is necessary to industrial progress; in its absence industry would tend to stagnate. Research implies a systematic, planned and organized programme designed to add to knowledge; and in the high and rapidly advancing state of technology it is an indispensable partner to initiative. Increasingly, management is dependent upon the specialist who is skilled in the conduct of research to provide the new knowledge on which significant advances may proceed.

All techniques employed in industrial processes represent our control over natural forces and develop from our understanding of the operation of these forces, that is to say, from fundamental scientific knowledge. Growth of scientific knowledge opens the door to new means of bringing nature into subjection to human ends; and may give rise to advances in industrial techniques across a wide front. Any nation which desires to progress industrially must make its contribution to fundamental scientific research. Sometimes inquiries which are directed to specific problems, i.e., applied research, will incidentally throw light on fundamental processes but this is not their primary objective. It is understandable that research directed at fundamental knowledge, which is general in its application,

should be publicly supported and that research applied to particular industrial problems should be undertaken by those engaged in the industry affected. In practice this simple division of responsibility is considerably modified.

Traditionally, fundamental research designed to broaden the base of scientific knowledge has been a function of universities either publicly supported or privately endowed; and universities have been assigned the function of training research scientists. In practice much of the research conducted in Canadian universities is applied research. This is not undesirable as long as the primary function of fundamental research is not neglected. The balance effected depends to a considerable extent on the sources of funds available for support of research in universities. Lack of balance, with neglect of fundamental research, results when universities must rely for research on funds which are provided for specific and applied purposes. Fundamental research can only be given its proper emphasis when available funds can be used to this end. It may not be possible to define precisely the volume of fundamental research which should be undertaken in Canadian universities, but we feel it necessary to warn against a tendency to subordinate fundamental to applied research, and to point out that as our universities grow the proper performance of their functions will require increasing support for research of a fundamental nature.

Research in universities is not unrelated to their unique function of training research scientists. The training of a research scientist goes far beyond the limits of an undergraduate programme. The supply of scientists to universities, research organizations, and industry depends on the availability of post-graduate programmes of research and instruction. Post-graduate programmes designed to develop research scientists must include the opportunity to engage in research; and direction must be given by instructors with qualifications beyond those which may be sufficient for teaching at the undergraduate level. Universities which are to offer post-graduate programmes must therefore have facilities for research, and funds to support the specific projects on which graduate students are to engage. They must also be in a position to attract and retain staff with the necessary qualifications to guide advanced students. Unfortunately, as a general rule these conditions have been available to graduates of Canadian universities only in institutions in other countries. Canadian universities, generally speaking, have had neither the facilities nor the staff to offer adequate post-graduate programmes. We should all be grateful to the institutions in other countries which have allowed Canadian scientists to get their essential training. However, Canadian graduate students have contributed to research in other countries; and many of them have not returned to Canada. It is our view that Canadian universities should have an opportunity to expand their post-graduate programmes in the science departments. To do this they will require improved facilities, up-to-date and more expensive

equipment, post-graduate fellowships, and the opportunity to bid for and secure the best available scientists.

While all other research activities are dependent on the universities for trained research workers, the universities are not the only organizations conducting research essential to the growth of the economy. Organized research is undertaken and supported by the Federal Government, provincial governments, voluntary organizations and some industries and firms. Government research and expenditures on research, through departments of the Federal Government and provincial research councils and foundations reflect the early and continuing concern to promote the development and utilization of natural resources. This concern, and the typically small size of the producing unit in some of the industries involved, have directed particular attention to research in agriculture, mining, fisheries and forestry. The pulp and paper industry is an example of a primary industry in which the relatively large size of firms has made possible the development of research programmes within the industry. Considerable government support for industrial research developed during, and carried over after the Second World War; but the volume of research in Canadian industries is relatively slight. This is due in some measure to the corporate relations of many Canadian industrial firms. Firms with parent companies in other countries have been able to draw from research conducted by the parent companies, but this has limited the opportunities for corporate research on an industry basis.

During our hearings we received a submission from the President of the National Research Council on "Canadian Research Expenditures". This statement drew attention to the difficulty of securing reliable and comparable data but concluded, first, that expenditure on research by the Federal Government seems to compare favourably with government expenditure in Britain and the United States, when related to population, government budgets and the Gross National Product; second, that although government support for research in Canadian universities is substantial and has been expanding, total support for university research is at a much lower level than in the United States; and third, that expenditure on research by industry in Canada is relatively very low although there has been an encouraging expansion since the War.

Our own conclusions concerning the importance of research may be summarized as follows. In the first place, we believe that the rate of technical advance in Canada must accelerate if we are to maintain our position in relation to other countries and to achieve the growth of the economy which we have predicted. This means a continuously expanding research effort. Secondly, the levels at which research will be conducted and technical progress achieved will be more demanding in terms of skills and facilities than has been the case in the past. This means generally

more elaborate provision for research. Third, in many areas the scale on which research must be conducted and the elaborate facilities required will necessitate industry co-operation and substantial government participation. Finally, while the results of well directed research effort will yield substantial returns, it is important that the total research effort should be continuously under review in order to avoid duplication and to detect gaps; and that research information when available should be rapidly and effectively communicated to those who can use it.

It seems to us that the time is opportune to make a careful appraisal of the total national research effort, and in this way to prepare ourselves for the increasing activities in this vitally important field that will be required.

Conclusion

In this report, we have had occasion to discuss many of the problems which seem likely to arise in future in connection with the probable economic development of Canada. In some cases, we have made suggestions or proposals for dealing with the problem under discussion; in others, we have noted the problem without proposing in specific terms how it should be dealt with. There are still other problems which we foresee which for one reason or another we have not mentioned, or which we have referred to only in passing, and which we have not studied in the detail they deserve. By far the most important of these is the whole question of the continuing relationship of the federal, provincial and municipal levels of government, and the tax revenues which each should have in order adequately to carry out its responsibilities.

The fact that we have not studied this central issue in any detail should not be interpreted as meaning that we have doubts about its fundamental importance. However, when this Commission was established in June, 1955, the whole subject of federal-provincial tax agreements had been under study for many months by the officials of the respective governments preparatory to a Federal-Provincial Conference on the subject. In fact, we delayed commencement of our public hearings so as not to conflict with this Conference. It would have been presumptuous on our part under these circumstances to have launched a parallel inquiry into this highly controversial question on which at the time Canada's political leaders and all the acknowledged experts were engaged. And quite apart from this, it would not have been possible for us to recruit the expert staff which would have been needed for such a study.

We have stated the reasons why we did not ourselves embark upon a comprehensive study of this problem. We believe, however, that it is a problem that will have to be resolved, if not completely then at least in part, if the needs of our changing population are to be met, if the

difficulties of an increasingly urban industrial society are to be dealt with effectively and if the claims of certain parts of Canada are to be honoured in the best interests of national unity.

Neither did we think it possible for us to undertake the kind of exhaustive study of the tax system which would have been necessary to enable us to express opinions about the present level of taxation and the effect which this may have upon the development of the economy, important as this question may be. A study, *Certain Aspects of Taxation Relating to Investment in Canada by Non-Residents*, was prepared for us in connection with our research into, and consideration of, the question of foreign investment in Canada. But we felt the much more comprehensive examination of the tax structure which would have been needed if we were properly to consider the effects of tax levels on economic development and investment was beyond the limits of our staff resources.

We did not make a separate study of the proper conservation of our natural resources, although references are made to various aspects of this important subject in several places in this report. Speaking generally, we believe the rate at which our resources are likely to be exploited during the next twenty-five years will be influenced in the main by questions of demand rather than by limitations of supply. But this does not mean, of course, that we can afford to be profligate or careless in the use of our resources during the next quarter century or indeed at any time. We believe the careful husbandry of our resources — including land, forests, oil and gas and other minerals, and water — will become increasingly important in the years to come. We hope the question of the proper conservation of these resources will receive the serious study in the future which clearly should be given to it.

We should have liked to have conducted research in a number of other fields, including the effects which changes in public thinking and psychology may have on economic development in the future. What stresses and strains are likely to arise as a result of the rapid rate of industrialization and of urbanization that is going on? What will be the effects of shorter working hours, of greatly increased opportunities for leisure and of a much easier way of life on future generations? Will there be greater similarity in the future in the way people work and are entertained and go about the business of living? And, if so, will this mean greater conformity in thinking as in other things? Such questions were, we thought, beyond our means of tackling. We hope others will be encouraged to go on from where we have felt it necessary to leave off.

In closing this report we wish to emphasize that we have no illusions about our competence to forecast accurately the economic prospects of this nation over the next quarter century, even on the basis of the premises

we have set forth. Assuredly, many things will happen and many events will occur that cannot now be foreseen which will result in important changes in the picture we have portrayed. However, we hope the attempt we have made to forecast the general direction in which the Canadian economy seems to be headed and the shape or structure of the economy that may emerge in twenty-five years' time has helped to indicate a number of problems which should be dealt with. None of these problems may seem unduly serious, particularly if one compares Canada's present relative prosperity and bright future prospects with economic conditions and prospects in most other countries of the world. Nevertheless, our future prospects will be enhanced if the right decisions are taken in dealing with the various problems we have noted; and, conversely, our prospects will be less bright if the wrong decisions are made or if no action is taken with respect to some of them.

We wish to emphasize again how important it is that Canadian policies should not be fixed or rigid. We have taken it for granted that they will be flexible and will be changed from time to time as conditions and circumstances demand. We have also assumed that we shall avoid policies which are contrary to sound economic sense. The adoption of policies designed to interfere with, or to frustrate, the natural flow of trade or of economic development could reduce or nullify the optimistic forecasts we have made.

One of our basic premises is that there will not be a serious depression or prolonged periods of mass unemployment during the next twenty-five years. In many circles there is still considerable lack of knowledge and suspicion about the instruments which are available to governments for stimulating employment or containing inflation and considerable misunderstanding about the limitations of such instruments. It was partly for this reason that we devoted the first part of this last chapter to a discussion of this subject. As we have said, we believe the major preoccupation of the Federal Government in the field of domestic policy in the future will be the maintenance of economic stability throughout the nation.

Finally, our forecasts have been predicated on the avoidance of global war in which nuclear weapons and intercontinental ballistic missiles would almost certainly be used. The developments which have been made in these instruments of mass destruction have been phenomenal, even during the short period of 2½ years during which this Commission has been at work. There is every reason to expect that further developments in the future will be equally rapid, startling and frightening. If we are to avoid annihilation and the destruction of civilization as we know it, the main effort of all civilized peoples must be devoted to the creation of some kind of international organization with power to control these forces of destruction. That may seem a strange note on which to close a report

upon Canada's economic prospects, which on certain assumptions are most promising. But the briefest reflection will remind us that there may be no future at all, if the forces for destruction in this mid-twentieth century are ever let loose. If these forces are controlled, if the other premises on which our forecasts are based are supported by events, if we are given leadership, flexible policies and a bit of luck — then, as we said in our *Preliminary Report*, "Canadians have every reason to look forward with optimism and confidence to the continued economic development of our country and to a rising standard of living in the years to come".

ALL OF WHICH WE RESPECTFULLY SUBMIT FOR YOUR EXCELLENCY'S
CONSIDERATION.

W. L. Gordon

Chairman

Mr. Luce

D. E. Graver.

Andrew H. ...

By ...

D. V. LePan,
Secretary and Director of Research

November 28, 1957.

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* Copies of all the submissions made to the Commission and of the transcripts of evidence have been deposited in the Public Archives of Canada and in The Library of Parliament. They may also be consulted in the libraries of the University of Alberta, the University of British Columbia, Laval University, the Memorial University of Newfoundland and the University of Toronto.

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- ³ See *The Outlook for the Canadian Forest Industries*, 1957, a study prepared by the Commission's forestry study group.
- ⁴ See *America's Demand for Wood*, Stanford Research Institute, pub. by the Weyerhaeuser Timber Co., Tacoma, Washington, 1954.
- ⁵ See *The Pulp and Paper Industry—1955*, Industry and Merchandising Division, Forestry Section, D.B.S. Total production is defined (page H-7) as follows:
 "If operations in the woods are taken into consideration, the total value to Canada of the industry as a whole may be considered as the sum of the values of pulpwood and pulp exported and the gross value of paper products. This removes any duplication that might arise by the inclusion of pulpwood used in Canadian pulp-mills and pulp used in Canadian paper-mills but makes no allowance for pulp that might be used in Canada for purposes other than the manufacture of paper . . ."
 Pulpwood exports have been deducted from the value figure used here, however, since they are treated separately in a later part of the chapter.
- ⁶ See evidence by Mr. V. E. Johnston, President, Canadian International Paper Company, pp. 4107-4108.
- ⁷ See Stanford Research Institute Study, *op. cit.*
- ⁸ See submission of Canadian Pulp and Paper Association, (Exhibit No. 111).

Chapter 12

- ¹ See evidence by Mr. J. M. Thompson, Vice-President and Comptroller, Canadian Westinghouse Company, p. 5755.
- ² See submission of Mr. J. G. Goss, President, Canadian General Electric Company Ltd., pp. 6-7.
- ³ See evidence by Mr. R. C. Berkinshaw, President of Goodyear Tire and Rubber Company of Canada Limited, p. 6226.
- ⁴ See D. H. Fullerton and H. A. Hampson, *Canadian Secondary Manufacturing Industry*, 1957, a study for the Commission, Chap. 4, p. 77.
- ⁵ See evidence by Mr. R. M. Sale, President, Ford Motor Company of Canada, Ltd., p. 5604; evidence by Mr. E. C. Row, President, Chrysler Corporation of Canada, Ltd., p. 5637; evidence by Mr. H. M. Turner, President, Canadian Electrical Manufacturers Association, p. 5715; and evidence by Mr. J. M. Thompson, Vice-President and Comptroller, Canadian Westinghouse Company, p. 5751.
- ⁶ See evidence by Mr. C. C. Thackray, President, Dominion Rubber Company Limited, p. 6236.

Chapter 13

- ¹ See *The Service Industries*, a study prepared for the Commission by The Bank of Montreal, Chap. 2, p. 12.
- ² See Wm. C. Hood and Anthony Scott, *Output, Labour and Capital in the Canadian Economy*, 1957, a study for the Commission, Chap. 2, Table 2.14, p. 38.
- ³ See Chap. 16 of this report for a discussion of the limited usefulness of conventional concepts of productivity when applied to the government and community services sector.
- ⁴ See P. W. Stewart, *Does Distribution Cost Too Much?* The Twentieth Century Fund, New York, 1939, Chap. 5.
- ⁵ See Harold Barger, *Distribution's Place in the American Economy since 1869*, National Bureau of Economic Research, Princeton University Press, 1955, Chap. 3.
- ⁶ See C. L. Burton, *A Sense of Urgency*, Toronto, 1952, p. 42.
- ⁷ See Hood and Scott, *op. cit.*, Chap. 7, and *The Service Industries*, *op. cit.*, Chap. 12, p. 143 ff.
- ⁸ See *Skilled and Professional Manpower in Canada, 1945-1965*, 1957, a study for the Commission by the Economics and Research Branch, Department of Labour, Canada.

Chapter 14

- ¹ See J-C. Lessard, *Transportation in Canada*, Schedule 6A. Figures include passenger traffic.
- ² See *ibid.*, Schedule 6C. Note above.
- ³ See submissions of the Canadian National Railways, (Exhibit No. 113); and of the Canadian Pacific Railway, (Exhibit No. 114).
- ⁴ See submission of the Canadian Trucking Associations, Inc., (Exhibit No. 218).
- ⁵ See Canadian National Railways annual report for 1955.
- ⁶ See submission of the Canadian National Railways, p. 7, (Exhibit No. 113).
- ⁷ See J. A. McDonald, "Some Notes on the Economics of Transportation," *Canadian Journal of Economics and Political Science*, November, 1951.
- ⁸ See Lessard, *op. cit.*, Appendix A by Arthur Hailey, where this question is fully discussed.
- ⁹ See Lessard, *op. cit.*, Section 2.
- ¹⁰ See submission of the Maritimes Transportation Commission, (Exhibit No. 237).
- ¹¹ See Lessard, *op. cit.*, pp. 98-100; and Canadian Tax Foundation, *Taxes and Traffic*, p. 103.
- ¹² See submissions of La Chambre de Commerce de Québec, (Exhibit No. 329); and of The Chamber of Commerce of the District of Baie Comeau, supported by the Eastern and Western Chambers of "the North Shore", Saguenay County, Quebec; and also by the Chamber of Commerce of the South Shore, (Exhibit No. 264).
- ¹³ See G. T. Glazebrook, *A History of Transportation in Canada*, Toronto, 1938; and *Cheadle's Journal of His Trip Across Canada*, ed. A. G. Doughty & G. Lanctot, 1931.

Chapter 15

- ¹ See Anthony Adamson, "What is Planning?", *The Municipal World*, January, 1957, p. 11.
- ² See submission of Central Mortgage and Housing Corporation, p. 9, (Exhibit No. 247).
- ³ See Province of Saskatchewan, *Report of the Royal Commission on Agriculture and Rural Life*, (Exhibit No. 35), particularly *Rural Roads and Local Government*—Report No. 4, (Exhibit No. 35E).

Chapter 18

- ¹ See Dominion Bureau of Statistics, *Canada's International Investment Position 1926-1954*, p. 25.
- ² See, for particulars, Irving Brecher and S. S. Reisman, *Canada-United States Economic Relations*, 1957, a study for the Commission.
- ³ See C. D. Blythe and E. B. Carty, "Non-Resident Ownership of Canadian Industry", *The Canadian Journal of Economics and Political Science*, November, 1956.

Chapter 19

- ¹ See evidence by Dr. Charles Camsell on behalf of Northwest Power Industries Limited, pp. 2783-2784.
- ² See submission of the Commissioner of the Yukon Territory, (Exhibit No. 52).
- ³ See submission of the Commissioner of the Northwest Territories, (Exhibit No. 50).
- ⁴ See submission of the Municipal District of Yellowknife and Yellowknife Board of Trade, (Exhibit No. 51).

Chapter 20

- ¹ See Maurice Lamontagne, "The Role of Government" in *Canada's Tomorrow*, ed. by G. P. Gilmour, Toronto, 1954.
- ² See Neil H. Jacoby, "Thinking Ahead", *Harvard Business Review*, May-June, 1957.
- ³ See Bank of Canada *Annual Report to Minister of Finance and Statement of Accounts* for the year 1956.
- ⁴ See *ibid.*
- ⁵ See Preamble to the Bank of Canada Act.
- ⁶ See John J. Deutsch, "The Canadian Treasury and Monetary Policy", a paper given at the meeting of the American Economic Association, Cleveland, December 29, 1956.
- ⁷ See Maurice Lamontagne, *op. cit.*

Appendix I

- ¹ See *Report of the Royal Commission on Dominion-Provincial Relations*, Book III, Recommendations, pp. 137-138.
- ² See Dominion Bureau of Statistics, *National Accounts—Income and Expenditure*, 1926-50, and 1950-56.
- ³ See submission of the Canadian Federation of Mayors and Municipalities, Section O, "Municipal Finance and Taxation: Problems and Prospects", (prepared by Carl Goldenberg), (Exhibit No. 217).

APPENDICES

THE ORDER IN COUNCIL

P.C. 1955-909

*Certified to be a true copy of a Minute of a Meeting
of the Committee of the Privy Council, approved by
His Excellency the Administrator on the 17th June, 1955.*

The Committee of the Privy Council have had before them a report from the Prime Minister stating that it is desirable that the Canadian people should be more fully informed of the long-term economic prospects of Canada, and that it is in the national interest to initiate, examine and publish studies of Canada's economic potentialities, including developments in productive capacity, the growth and distribution of the population, the direction and nature of our internal and external trade, progress in standards of living and expanding requirements for industrial and social capital.

The Committee, therefore, on the recommendation of the Prime Minister, advise that:

Walter Lockhart Gordon, Toronto, Ont.;
Omer Lussier, Quebec, P.Q.;
Albert Edward Grauer, Vancouver, B.C.;
Andrew Stewart, Edmonton, Alta.; and
Raymond Gushue, St. John's, Nfld.

be appointed Commissioners under Part 1 of the Inquiries Act (Chapter 154 of the Revised Statutes of Canada, 1952), to inquire into and report upon the long-term prospects of the Canadian economy, that is to say, upon the probable economic development of Canada and the problems to which such development appears likely to give rise, and without limiting the generality of the foregoing, to study and report upon:

- a) developments in the supply of raw materials and energy sources;
- b) the growth to be expected in the population of Canada and the changes in its distribution;
- c) prospects for growth and change in domestic and external markets for Canadian productions;
- d) trends in productivity and standards of living; and

e) prospective requirements for industrial and social capital.

The Committee further advise:

1. That the Commissioners be authorized to exercise all the powers conferred on them by Section 11 of the Inquiries Act;
2. That the Commissioners adopt such procedure and methods as they may, from time to time, deem expedient for the proper conduct of the inquiry and sit at such times and in such places in Canada as they may decide;
3. That the Commissioners be authorized to engage the services of such counsel, staff, clerks and technical advisers as they may require at rates of remuneration and reimbursement to be approved by the Treasury Board;
4. That the officers and employees of the departments of the Government of Canada render such assistance to the Commission as may be required for the inquiry;
5. That the Commissioners be directed to report to the Governor in Council; and
6. That Walter Lockhart Gordon be Chairman of the Commission and Douglas V. LePan be Secretary and Director of Research.

R. B. BRYCE,

Clerk of the Privy Council

ACKNOWLEDGEMENTS

THE BROAD nature of our task necessitated reliance on the assistance which could be made available by busy Canadians in many walks of life. That our efforts have borne fruit is due to the interest and co-operation of governments at all levels, of universities, of business, labour, professional, agricultural, social and other organizations, both national and local, and of the many individuals who took time from the rush of their daily activities to contribute the information, the opinions and the suggestions upon which the Commission's report is based.

We have journeyed across Canada, conducting hearings in all of the provinces and travelling through much of the Yukon and Northwest Territories and Labrador. Everywhere we were met with kindness, consideration and assistance and we should like to thank the very many people whose hospitality we were privileged to enjoy. Most of the 330 submissions which we received were presented to us during the course of our hearings. These submissions represent a contribution of inestimable value to our work. Prepared by provincial and municipal governments, by organizations and individuals engaged in all types of economic activity in the country, the generally high quality of these submissions provided us and our staff with a broad, yet detailed, view of the prospects and problems which may be expected in Canada's future development. It is our hope that all those who spent long hours in the preparation of these submissions in addition to their day-to-day routine have found the exercise to be of value to them and will realize the great importance which we attach to their contribution to our task. We are no less indebted to the more than 750 witnesses who appeared during the course of public hearings to present submissions and to give us the benefit of their views on probable developments within their particular fields of interest. We were most fortunate in obtaining publicly the views of provincial premiers, members and officials of their governments, of mayors and municipal officials, of outstanding representatives of business, industry, labour and of educational, social and other organizations. Many of those who appeared before us did so at real inconvenience to themselves not only in time but also in travelling considerable distances to give us their views. To all those who appeared before us and contributed so fully and frankly to our work the Commission is extremely grateful.

We should like to thank the governments of the provinces of Newfoundland, Ontario, Manitoba and Saskatchewan and the responsible

authorities in the cities of Halifax, Charlottetown, Fredericton, Edmonton, Calgary, Victoria and Quebec, as well as the University of Toronto and the President of the Exchequer Court of Canada for the fine arrangements which were made for the conduct of the hearings. We should also like to express our gratitude to the members of the press and to the news personnel of radio and television stations whose reporting of our activities has been most fair and whose suggestions have at all times been of value.

Complementing the public side of our inquiry we have had prepared a number of studies in which prospective developments in various sectors of the Canadian economy are examined. In this work we also relied upon the assistance of a large number of organizations and individuals. Many of those who presented submissions were approached by members of our staff for additional information on various phases of our work. Many industrial associations and particular companies in various fields have been most helpful in providing the information necessary for us to formulate our conclusions. Without exception, all of our inquiries have been met with sympathetic consideration and the utmost in co-operation. The many Federal Government departments and agencies which have provided information in connection with our studies have also been most co-operative in meeting our requests fully and promptly. We would particularly like to acknowledge our debt to Mr. Herbert Marshall, formerly the Dominion Statistician, to Mr. S. A. Goldberg, Assistant Dominion Statistician, and to the many members of the staff of the Dominion Bureau of Statistics, whose work in collating available material and preparing special statistical series has formed the basis for many of the studies. Their kindness and co-operation have not only facilitated, but indeed made possible, much of the work which we have undertaken.

Quite a number of the studies which are listed in Appendix C were prepared for the Commission by organizations and individuals who were not members of its staff. The names of these organizations and individuals appear in the appendix. To all of them we express our grateful thanks. In particular we are very deeply indebted to a number of organizations, which we shall refer to individually, which prepared studies for us, using entirely their own research personnel and without charge to us. Both of the predecessors of the Canadian Labour Congress have prepared studies for us. The former Trades and Labor Congress of Canada has contributed a study on *Labour Mobility*, and the former Canadian Congress of Labour, a study on the *Probable Effects of Increased Mechanization in Industry*. The Canadian Bank of Commerce has contributed a study on *Industrial Concentration*; The Bank of Montreal a study on *The Service Industries*; The Bank of Nova Scotia a study on *The Canadian Primary Iron and Steel Industry*; and The Royal Bank of Canada a study on *The Canadian Construction Industry*. A study of *The Canadian Automotive Industry* has been provided by The Sun Life Assurance Company of Canada. Mr. J. Grant

Glassco, F.C.A., of Clarkson, Gordon & Co., has contributed a study on *Certain Aspects of Taxation Relating to Investment in Canada by Non-Residents* and J. D. Woods & Gordon Limited has contributed a study on *The Canadian Agricultural Machinery Industry*. A study on *Skilled and Professional Manpower in Canada, 1945-1965* has been prepared by the Canadian Department of Labour, while the Fisheries Research Board and the Economic Service of the Canadian Department of Fisheries have prepared a study on *The Commercial Fisheries of Canada*. To all of these who contributed so much at considerable expense to themselves, the Commission would like to express its gratitude publicly.

The large task which has been ours would have been impossible without the very capable staff we were fortunate in assembling on short notice through the co-operation of governments, universities and other organizations which permitted members of their staffs to join in our endeavours. We would like to express our thanks to the University of Toronto for making available the services of Prof. Wm. C. Hood, to McGill University for the services of Prof. Irving Brecher, to the Ontario Agricultural College for the services of Prof. W. M. Drummond, to l'Université Laval for the services of Prof. Yves Dubé, to the University of Alberta for the services of Prof. W. Mackenzie and Mr. L. E. Poetschke, to the University of British Columbia for the services of Prof. Anthony Scott, to Queen's University for the services of Prof. D. W. Slater and to Yale University for the services of Prof. J. H. Young. We are grateful to the Standard Railway Equipment Manufacturing Co. (Canada) Limited for permitting Mr. J.-C. Lessard to serve as Transportation Consultant and to the St. Lawrence Seaway Authority, which kindly deferred work Mr. Lessard was to have undertaken at the time he agreed to assist us. We are also indebted to the Government of the Province of Nova Scotia for making available to us Dr. R. D. Howland; to the International Monetary Fund for letting Mr. Roger V. Anderson join our staff; to the United Nations Organization and the National Research Council for the services of Mr. G. T. McColm; to the Canadian and Catholic Confederation of Labour for the services of Mr. Maurice Sauvé; and to Harris & Partners Limited for permitting Mr. D. H. Fullerton to serve on our staff and to Burns Brothers and Denton Limited for allowing Mr. H. A. Hampson time to assist us with the drafting of certain chapters of our report. We should also like to express our gratitude to the Railway Association of Canada which permitted Mr. W. G. Scott to contribute to the study on *Transportation in Canada*, as well as to the Canadian National Railways for the services of Mr. J. D. Howe and to Trailmobile Canada Limited, which permitted Mr. Arthur F. Hailey to participate in this study. We are also indebted to the Canadian Pulp and Paper Association for the services of Mr. J. M. Smith, not only in connection with the study on *The Outlook for the Canadian Forest Industries* but also in preparing a study on *Canadian Economic Growth and Development from 1939 to 1955*; to the Canadian International Paper Company for the services of

Dr. D. A. Wilson in connection with the study on the forest industries; to the Canadian Federation of Agriculture which permitted Dr. E. C. Hope to assist in preparing the study on *Progress and Prospects of Canadian Agriculture*; to Central Mortgage and Housing Corporation for the services of Mr. J. V. Poapst; and to Clarkson, Gordon & Co. for the services of Mr. M. A. Mackenzie. In addition, we should like to acknowledge the assistance provided by the many Canadian Government departments which made available members of our staff on a full or part-time basis. Particular thanks are due to the Bank of Canada for putting at our disposal the services of several members of its research department and for affording us much further help and advice.

Mr. B. M. Erb, Editorial Consultant to the Commission, has done a remarkably fine job for us in editing the reports and studies and in processing them through the printers. We are very grateful to the Queen's Printer and to the Bureau of Translation for their close co-operation in the large task of publishing our report and studies.

Finally, we should like to acknowledge the very competent work done by the staff of the Commission including the research, administrative, secretarial and clerical personnel. Their patience and persistence throughout many long hours has permitted us to accomplish in some measure the task that was set before us.

We wish to make special mention of the services of Dr. John Davis, Mr. D. H. Fullerton, Professor Wm. C. Hood and Mr. S. S. Reisman, the four Assistant Directors of Research. Dr Davis was responsible for the various studies made of the resource industries and of the primary manufacturing industries. In addition to other responsibilities he was the principal adviser to the Commission on the sources and prospective demands for energy and prepared for us a study on this subject, *Canadian Energy Prospects*. Professor Hood was responsible for the statistical framework of the inquiry and the main aggregate forecasts. In addition he is preparing for us a study entitled *Financing of Economic Activity in Canada*. Professor Hood's high professional qualifications and leadership qualities made a considerable contribution to the work of the staff. Mr. Fullerton was responsible for the studies made of the secondary manufacturing industries. Mr. Reisman was responsible for the studies made of Canada's international economic relations. In addition to these broad responsibilities, all four of the Assistant Directors made other contributions of great value to the work of the inquiry as a whole. We wish to make special mention also of Professor D. W. Slater, whose name appears on two of the Commission's studies and who returned to give us valuable assistance in the closing months of our endeavours.

We are grateful to Major N. A. Lafrance, our Administrative Secretary, to Mr. J. B. Claxton, our Counsel, and to Mr. W. A. MacKay, Assistant

Secretary to the Commission, who were responsible for making most of the arrangements for the hearings. They were extremely thoughtful in dealing with the problems of transportation and accommodation, and in arranging the order in which the witnesses should appear. Mr. MacKay also rendered valuable service to the Commission by preparing research memoranda which are reflected at a number of points in this report. We are also grateful to Mr. Maurice Sauvé, Assistant Secretary to the Commission, for helping to arrange the hearings in Quebec and Montreal and for supervising the heavy work of translating our voluminous documents. It is due to him that we have been able to publish English and French texts of our reports and studies concurrently and without delay.

Finally, we wish to express our appreciation of the splendid work done by Mr. D. V. LePan, who has filled the double post of Secretary and Director of Research and about whom much of the work of the Commission has revolved. Mr. LePan, by his industry, patience and good humor, his sound judgment and rare intelligence, has made a contribution of the highest order to the conduct of our enquiries, to the planning of the research programme, to the co-ordination and completion of the studies and to the preparation of the report. To our great regret, because of illness he was not able to complete the task of drafting the whole of the report. However, throughout the preparation of the report, we were indebted to his broad understanding and sensitive appreciation of social and economic forces; and his great literary talents are reflected in the first eight chapters. We express our deep gratitude for his immensely valuable services and extend to him our best wishes in the career which lies ahead of him.

**STUDIES FOR THE COMMISSION
TO BE PUBLISHED SEPARATELY**

- Output, Labour and Capital in the Canadian Economy —
by Wm. C. Hood and Anthony Scott
- Canadian Energy Prospects —
by John Davis
- Progress and Prospects of Canadian Agriculture —
by W. M. Drummond and W. Mackenzie
- The Commercial Fisheries of Canada —
by The Fisheries Research Board and The Economic
Service of The Department of Fisheries of Canada
- The Outlook for the Canadian Forest Industries —
by John Davis, A. L. Best, P. E. Lachance,
S. L. Pringle, J. M. Smith, D. A. Wilson
- Mining and Mineral Processing in Canada —
by John Davis
- Canadian Secondary Manufacturing Industry —
by D. H. Fullerton and H. A. Hampson
- The Canadian Primary Iron and Steel Industry —
by The Bank of Nova Scotia
- The Canadian Automotive Industry —
by The Sun Life Assurance Company of Canada
- The Canadian Agricultural Machinery Industry —
by J. D. Woods & Gordon Limited
- The Canadian Industrial Machinery Industry —
by Urwick, Currie Limited
- The Canadian Electrical Manufacturing Industry —
by Clarence L. Barber
- The Electronics Industry in Canada —
by Canadian Business Service Limited
- The Canadian Primary Textiles Industry —
by National Industrial Conference Board (Canadian Office)
- The Canadian Construction Industry —
by The Royal Bank of Canada
- The Canadian Chemical Industry —
by John Davis
- The Service Industries —
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- Probable Effects of Increasing Mechanization in Industry —
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- Labour Mobility —
by The Trades and Labor Congress of Canada, now
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- Skilled and Professional Manpower in Canada, 1945-1965 —
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- Financing of Economic Activity in Canada —
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by J. Grant Glassco of Clarkson, Gordon & Co.,
Chartered Accountants
- Consumption Expenditures in Canada —
by David W. Slater
- Canada's Imports —
by David W. Slater
- The Future of Canada's Export Trade* —
by Roger V. Anderson
- Canada - United States Economic Relations* —
by Irving Brecher and S. S. Reisman
- Canadian Commercial Policy* —
by J. H. Young
- Some Regional Aspects of Canada's Economic Development —
by R. D. Howland
- The Nova Scotia Coal Industry —
by Urwick, Currie Limited
- Canadian Economic Growth and Development from
1939 to 1955 —
by J. M. Smith

* Prepared under the direction of S. S. Reisman.

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*J. M. Smith
*A. W. Watson

* Part or limited time

HEARINGS

THE COMMISSION held public hearings in 14 cities throughout Canada, including the capitals of all of the ten provinces. Of the submissions filed with the Commission, 260 were presented during the course of these hearings, which extended over a total of 50 days.

In addition, members of the Commission travelled extensively in the Yukon Territory, the Northwest Territories and in Labrador, and through informal discussions with residents and officials in these areas learned at first hand about prospective developments in the Canadian North.

Public hearings of the Commission were conducted in the following cities:

St. John's	October 18, 1955.
Halifax	October 19-21, 1955.
Charlottetown	October 24, 1955.
Fredericton	October 26-27, 1955.
Winnipeg	November 14-16, 1955.
Regina	November 17-18, 1955.
Edmonton	November 21-23, 1955.
Calgary	November 24-25, 1955.
Victoria	November 28, 1955.
Vancouver	November 30 - December 2, 1955.
Quebec	January 16, 1956.
Montreal	January 18-20, 1956.
Toronto	January 23 - February 3, 1956.
Montreal	February 20-24, 1956.
Ottawa	February 27 - March 9, 1956.

SUBMISSIONS RECEIVED

THE COMMISSION received some 330 submissions plus a number of supplementary documents which were received and filed as exhibits with the original submissions. Opinions in writing were also received from a number of other organizations and individuals supporting particular submissions or presenting their own views informally and to these, as well as to those who prepared and submitted briefs, the Commission is indebted for assistance.

The following is a complete list of submissions received and filed as exhibits by the Commission. Each is listed by exhibit number and by the name of the person and organization that presented it.

- Ex. 1 — Hon. J. R. Smallwood, Premier, and Mr. H. Carl Goldenberg, Counsel, the Government of the Province of Newfoundland.
- Ex. 2 — Mayor L. A. Kitz, The City of Halifax.
- Ex. 3 — Mr. A. R. Harrington, Assistant General Manager, Nova Scotia Light and Power Company, Limited.
- Ex. 4 — Hon. H. D. Hicks, Premier, and Hon. W. T. Dauphinee, Minister of Trade and Industry, The Government of the Province of Nova Scotia.
- Ex. 5 — Mr. Stanton Sandford, President, Nova Scotia Federation of Agriculture.
- Ex. 6 — Mr. Roland Sutton, Secretary, Nova Scotia Fruit Growers' Association.
- Ex. 7 — Mr. A. C. Carter, Director and General Manager, Cossor (Canada) Limited.
- Ex. 8 — Mr. L. A. Forsyth, President, Dominion Steel and Coal Corporation, Limited, on behalf of Dominion Coal Company Limited; Old Sydney Collieries Limited; Cumberland Railway and Coal Company; Acadian Coal Company Limited.
- Ex. 9 — Mr. L. A. Forsyth, President, Dominion Steel and Coal Corporation, Limited, — Memorandum in connection with the Primary Iron and Steel Industry of Nova Scotia.
- Ex. 10 — Mr. L. A. Forsyth, President, Dominion Steel and Coal Corporation, Limited, — Past, Present and Future Prospects of the Transportation Factor in the Movement of DOSCO's Products from Its Nova Scotia Operations.
- Ex. 11 — Mr. Ben O'Neil, President, Local Union 1064, United Steelworkers of America.
- Ex. 12 — Mr. Thomas MacLachlan, President, District 26, United Mine Workers of America.
- Ex. 13 — Mr. J. K. Bell, Secretary-Treasurer, Maritime Marine Workers' Federation.
- Ex. 14 — Hon. A. W. Matheson, Premier, The Government of the Province of Prince Edward Island.
- Ex. 15 — Mayor J. David Stewart, The City of Charlottetown.
- Ex. 16 — Mr. J. L. Dewar, Secretary, The Prince Edward Island Federation of Agriculture.
- Ex. 17 — Mr. L. F. Macdonald, President, The Prince Edward Island Teachers' Federation.
- Ex. 18 — Hon. Hugh John Flemming, Premier, The Government of the Province of New Brunswick.
- Ex. 19 — Mayor H. S. Wright, The City of Fredericton.
- Ex. 20 — Mr. Nelson Mann, Executive Manager, The Atlantic Provinces Economic Council.
- Ex. 21 — Mr. D. A. Elliot, President The New Brunswick Council of Labour, C.C.L.
- Ex. 22 — Mr. E. H. Brewer, 1st Vice-President, The New Brunswick Teachers' Association.

- Ex. 23 — Mr. J. L. G. Cassidy, Director, New Brunswick Vocational Institute.
- Ex. 24 — Hon. D. L. Campbell, Premier; Hon. R. D. Turner, Minister of Industry and Commerce; Hon. R. D. Robertson, Minister of Agriculture; The Government of the Province of Manitoba.
- Ex. 24A — The Government of the Province of Manitoba — (supplementary submission — “Processing of Agricultural Products in Manitoba”).
- Ex. 24B — The Government of the Province of Manitoba — (supplementary submission — “Financing of Small Business in Manitoba”).
- Ex. 25 — Alderman Charles Simonite, Chairman, Finance Committee of the Council, The City of Winnipeg.
- Ex. 25A — Mr. M. S. Bubbis, General Manager, Greater Winnipeg Water District and Greater Winnipeg Sanitary District.
- Ex. 26 — Mr. W. J. Parker, President, Manitoba Pool Elevators.
- Ex. 27 — Mr. E. L. Brown, President and Managing Director, Sherritt Gordon Mines Ltd.
- Ex. 28 — Mr. F. D. Shepherd, Executive Vice-President, The Mid-West Metal Mining Association.
- Ex. 29 — Mr. J. D. Wilton, President, The Manitoba Federation of Agriculture and Co-operation.
- Ex. 30 — Mr. J. N. Galonsky, Secretary-Treasurer, The Manitoba Farmers’ Union.
- Ex. 31 — Mr. A. S. Leach, Chairman of the Board, The Winnipeg Grain Exchange.
- Ex. 32 — Mr. C. F. Greene, Honorary Secretary, Manitoba Division, Community Planning Association of Canada.
- Ex. 33 — Mr. E. W. Thrift, Director, Metropolitan Planning Commission of Greater Winnipeg.
- Ex. 34 — Mayor J. H. Chipperfield, Minnedosa; President, Manitoba Urban Association.
- Ex. 35 — Hon. T. C. Douglas, Premier; Hon. I. C. Nollett, Minister of Agriculture; Hon. J. H. Brockelbank, Minister of Natural and Mineral Resources; Hon. C. M. Fines, Provincial Treasurer; The Government of the Province of Saskatchewan.
- Ex. 35A — Hon. I. C. Nollett, Minister of Agriculture, The Government of the Province of Saskatchewan — (supplementary submission — “Saskatchewan’s Agricultural Resources”).
- Ex. 35B — The Government of the Province of Saskatchewan — (supplementary submission — Royal Commission on Agriculture and Rural Life — report — “2. Mechanization and Farm Costs”).
- Ex. 35C — The Government of the Province of Saskatchewan — (supplementary submission — Royal Commission on Agriculture and Rural Life — report — “1. The Scope and Character of the Investigation”).
- Ex. 35D — The Government of the Province of Saskatchewan — (supplementary submission — Royal Commission on Agriculture and Rural Life — report — “3. Agricultural Credit”).
- Ex. 35E — The Government of the Province of Saskatchewan — (supplementary submission — Royal Commission on Agriculture and Rural Life — report — “4. Rural Roads and Local Government”).
- Ex. 35F — The Government of the Province of Saskatchewan — (supplementary submission — Royal Commission on Agriculture and Rural Life — report — “5. Land Tenure”).
- Ex. 36 — Mayor L. H. Lewry, City of Moose Jaw.
- Ex. 37 — Mayor L. H. Hammond, City of Regina.
- Ex. 38 — Mr. L. B. Thomson, Director, P.F.R.A., Canada Dept. of Agriculture.
- Ex. 38A — Mr. L. B. Thomson, Director, P.F.R.A., Canada Dept. of Agriculture (supplementary submission).
- Ex. 39 — Mr. Olaf Turnbull, Director, Saskatchewan Farmers Union.
- Ex. 40 — Mr. R. J. Henderson and Mr. I. E. Moore, Saskatchewan Federation of Labour (C.C.L.) and Saskatchewan Provincial Federation of Labour (T.L.C.).
- Ex. 41 — Mr. E. J. Goos, Manager, The Prince Albert Chamber of Commerce on behalf of The Council of the City of Prince Albert.
- Ex. 42 — Mr. E. J. Goos, Manager, The Prince Albert Chamber of Commerce.
- Ex. 43 — Mr. J. H. Wesson, President, The Saskatchewan Wheat Pool.
- Ex. 44 — Mr. M. A. MacPherson, Counsel, Saskatchewan Rivers Development Association.
- Ex. 45 — Mr. Alex Aitken, Manager, The Regina Chamber of Commerce, and Mr. H. A. Purdy, Executive Secretary, Saskatchewan Board of Trade.
- Ex. 46 — Mr. W. E. Simpson, Counsel, Government of the Province of Alberta, Special submission by the Government of the Province of Alberta.

- Ex. 47 — Hon. E. C. Manning, Premier, and Hon. A. R. Patrick, Minister of Economic Affairs, Government of the Province of Alberta.
 Ex. 47A — Mr. J. J. Frawley, Special Counsel, Executive Council of Alberta, Government of the Province of Alberta — (supplementary submission).
- Ex. 48 — Mr. C. J. Anderson, Manager, on behalf of the Board of Trustees, Eastern Irrigation District, Brooks, Alta.
- Ex. 49 — Mr. M. W. Mackenzie, President, Canadian Chemical & Cellulose Company, Ltd.
- Ex. 50 — Mr. R. G. Robertson, Commissioner of the Northwest Territories.
- Ex. 51 — Mayor G. A. Allen, Yellowknife, Municipal District of Yellowknife and Yellowknife Board of Trade.
- Ex. 52 — Mr. F. H. Collins, Commissioner of the Yukon Territory.
- Ex. 53 — Mr. C. E. White, General Manager, United Keno Hill Mines Ltd.
- Ex. 54 — Mr. Harold Hine, Counsel and Director, The Board of Trade of the City of Whitehorse, Yukon Territory.
- Ex. 55 — Mr. Roy Marler, President, The Alberta Federation of Agriculture.
- Ex. 56 — Mayor Wm. Hawrelak, The City of Edmonton.
- Ex. 57 — Mr. L. Gertler, Director and National Counsellor, The Community Planning Association of Canada, Alberta Division.
- Ex. 58 — Dr. R. Hilton, President, Edmonton Branch, Alberta Institute of Agrologists.
- Ex. 59 — Mayor D. H. MacKay, City of Calgary.
- Ex. 60 — Mr. Lawrence E. Kindt, Lawrence E. Kindt & Associates, Consulting Economists.
- Ex. 61 — Mr. P. L. Kartzke, Chairman, Board of Governors, Canadian Petroleum Association.
 Ex. 61A — Canadian Petroleum Association — (supplementary submission "Income Tax Applicable to the Oil and Gas Industry in Canada").
- Ex. 62 — Mr. E. D. Loughney, Vice-President, Canadian Gulf Oil Company.
- Ex. 63 — Mr. W. C. Whittaker, Managing Director, The Coal Operators' Association of Western Canada.
- Ex. 64 — Mr. J. E. Brownlee, President, United Grain Growers Limited.
- Ex. 65 — Mr. R. S. Munn, President, Burns & Co. Limited.
- Ex. 66 — Mr. Ben S. Plumer, Chairman, Alberta Wheat Pool.
- Ex. 67 — Mr. S. B. Slen, President, Lethbridge Branch, Agricultural Institute of Canada.
- Ex. 68 — Mr. Charles Weir, Alberta Representative, Edmonton & Calgary Metal Workers, International Union of Mine, Mill and Smelter Workers (Canada).
- Ex. 69 — Mr. Travers Smith, President, Cardston and District Sheepmen's Association.
- Ex. 70 — Mr. E. A. Hutchinson, The Calgary House Builders Association.
- Ex. 71 — Mr. Glenn E. Neilson, President, Husky Oil & Refining Ltd.
- Ex. 72 — Mr. Knut Magnusson, Fogelvik Farms, Innisfail, Alberta.
- Ex. 73 — Hon. W. A. C. Bennett, Premier, and Hon. R. W. Bonner, Attorney General, Government of the Province of British Columbia.
 Ex. 73A — Government of the Province of British Columbia — (documentary submission).
- Ex. 74 — Mayor C. L. Harrison, The City of Victoria.
- Ex. 75 — Mayor Geo. Muir, Nanaimo, and Mr. D. M. Greer, Nanaimo Chamber of Commerce, The Corporation of the City of Nanaimo and Nanaimo Chamber of Commerce.
- Ex. 76 — Mr. G. F. Dunn, President, The Victoria Chamber of Commerce.
- Ex. 77 — Mr. J. W. Casey, Reeve, The Municipal Council of the Corporation of the District of Saanich.
- Ex. 78 — Mr. J. R. Tolmie, Counsel, Northwest Power Industries Limited.
- Ex. 79 — Mayor F. J. Hume, The City of Vancouver.
- Ex. 80 — Mr. R. A. Mahoney, Management Research (Western) Ltd., Consultant for Forest Industry Associations of British Columbia, comprised of the following:
 British Columbia Loggers Association;
 British Columbia Lumber Manufacturers Association;
 Canadian Pulp & Paper Association (Western Division);
 Consolidated Red Cedar Shingle Association;
 Interior Lumber Manufacturers Association;
 Northern Interior Lumbermen's Association;
 Plywood Manufacturers Association of British Columbia;
 The Truck Loggers Association.
- Ex. 81 — Mr. P. R. U. Stratton, The Vancouver Housing Association.
- Ex. 82 — Mr. B. Patterson, Planning Officer, The Municipal District of West Vancouver.
- Ex. 83 — Mr. W. T. Lane, Chairman, The British Columbia Division of the Community Planning Association of Canada.

- Ex. 84 — Mr. J. C. Oliver, City Engineer of Vancouver and Member, The Technical Committee for Metropolitan Highway Planning (British Columbia).
- Ex. 85 — Mr. C. D. Ovens, General Secretary, B.C. Teachers' Federation.
- Ex. 86 — Mr. E. J. Irwin, President, British Columbia Automobile Association.
- Ex. 87 — Mr. Russell Baker, President and General Manager, Pacific Western Airlines Ltd.
- Ex. 88 — Mr. C. J. Rogers, Managing Director, The White Pass and Yukon Corporation Limited.
- Ex. 89 — Mr. G. F. Edwards, President, Senior Citizens' Association of British Columbia.
- Ex. 90 — Dr. H. V. Warren, British Columbia & Yukon Chamber of Mines.
- Ex. 91 — Mr. G. W. G. McConachie, President, Canadian Pacific Air Lines Ltd.
- Ex. 92 — Mr. S. Jenkins, President, Marine Workers and Boilermakers' Industrial Union, Local 1, for the Committee of Maritime Unions, comprised of the following:
Shipyard General Workers Federation;
Grain Elevator Workers, Local 333;
International Longshoremen's and Warehousemen's Union, Locals 501, 507, 509.
- Ex. 93 — Mr. Charles N. Woodward, Vice-President, Woodward Stores Limited.
- Ex. 94 — Mr. E. L. Harrison, Vice-Chairman, The Fisheries Association of British Columbia.
- Ex. 95 — Mr. Alan H. Williamson, Vice-President, Wood, Gundy & Company Ltd.
- Ex. 96 — Mr. R. K. Gervin, General Secretary-Treasurer, Vancouver, New Westminster and District Trades and Labour Council.
- Ex. 97 — Mr. Homer J. Stevens, General Secretary-Treasurer, United Fishermen and Allied Workers Union.
- Ex. 98 — Mr. J. W. Wilson, Executive Director, The Lower Mainland Regional Planning Board of British Columbia.
- Ex. 99 — Mr. G. Sleath, Better B.C. Institute.
- Ex. 100 — Mr. Neal Harlow, Librarian, The Library, The University of British Columbia.
- Ex. 101 — Mr. S. J. Hammitt, President, Western Canada Steel Limited.
- Ex. 102 — Mr. D. A. B. Murray, President, Downtown Business Association of Winnipeg.
- Ex. 103 — Mr. I. Graham, President, Property Owners Association of Calgary.
- Ex. 104 — Mayor W. Hamel, The City of Quebec.
- Ex. 105 — Mr. J. Peter Nadeau, Director, Dairy Technicians Association.
- Ex. 106 — Hon. C. Vaillancourt, Manager, Fédération des Caisses Populaires Desjardins de Québec.
- Ex. 107 — Mr. F. G. Ferrabee, President, The Machinery and Equipment Manufacturers Association of Canada.
- Ex. 108 — Mr. T. R. McLagan, President, Canada Steamship Lines Ltd.
- Ex. 109 — Mr. T. R. McLagan, President, The Canadian Shipbuilding and Ship Repairing Association.
- Ex. 110 — Maj. Gen. G. B. Howard, Executive Vice-President and General Manager, Canadian Industrial Preparedness Association.
- Ex. 111 — Mr. R. M. Fowler, President, Canadian Pulp and Paper Association.
- Ex. 112 — Mr. E. Howard Smith, President, Howard Smith Paper Mills Limited.
- Ex. 113 — Mr. Donald Gordon, Chairman and President, Canadian National Railways.
- Ex. 114 — Mr. N. R. Crump, President, Canadian Pacific Railway Company.
- Ex. 115 — Mr. G. R. McGregor, President, Trans-Canada Air Lines.
- Ex. 116 — Mr. W. G. Miller, President, Montreal Locomotive Works, Ltd.
- Ex. 117 — Mr. E. J. Cosford, President, Canadian Car & Foundry Company Limited.
- Ex. 118 — Mr. A. P. Shearwood, Chairman and Chief Executive Officer, National Steel Car Corporation, Limited.
- Ex. 119 — Mr. J. G. Notman, President and General Manager, Canadair Limited.
- Ex. 120 — Mr. A. L. Stein, Counsel, The Montreal Dress Manufacturers' Guild.
- Ex. 121 — Mr. Vernon E. Johnson, President, Canadian International Paper Company.
- Ex. 122 — Mr. F. G. Gardiner, Chairman of the Council, The Municipality of Metropolitan Toronto.
- Ex. 123 — Mayor Nathan Phillips, The City of Toronto.
- Ex. 124 — Dr. Solomon Barkin, Director of Research, Textile Workers Union of America, — C.C.L. - C.I.O.
- Ex. 125 — Mr. J. R. White, President, Imperial Oil Limited.
- Ex. 126 — Mr. M. S. Beringer, President, British American Oil Company Limited.
- Ex. 127 — Mr. D. W. Ambridge, President, and General Manager, Abitibi Power & Paper Company Limited.
- Ex. 128 — Prof. J. K. Galbraith, Harvard University.
- Ex. 129 — Mr. V. C. Wansbrough, Vice-President and Managing Director, Canadian Metal Mining Association.
- Ex. 130 — Mr. M. S. Fotheringham, Director, Ontario Mining Association.

- Ex. 131 — Mr. H. L. Roscoe, Vice-President, Noranda Mines, Limited.
- Ex. 132 — Mr. F. M. Connell, President, Conwest Exploration Limited.
- Ex. 133 — Mr. H. S. Scott, Chief Geologist, Aeromagnetic Surveys Limited.
- Ex. 134 — Mr. H. S. Wingate, President, The International Nickel Company of Canada, Limited.
- Ex. 135 — Mr. T. Lindsley, Chairman of the Board, Ventures Ltd.
- Ex. 136 — Mr. James Stewart, President, The Canadian Bank of Commerce.
- Ex. 137 — Prof. Vincent Bladen, University of Toronto.
- Ex. 138 — Mr. J. F. Brown, Secretary, The Saskatchewan Federation of Agriculture.
- Ex. 139 — Hon. Leslie M. Frost, Prime Minister, Government of the Province of Ontario.
- Ex. 140 — Dr. Richard L. Hearn, Chairman, Hydro-Electric Power Commission of Ontario.
Ex. 140A — Dr. Richard L. Hearn, Chairman, Hydro-Electric Power Commission of Ontario. — (supplementary submission).
- Ex. 141 — Mr. S. M. Blair, President, Canadian Bechtel Limited.
- Ex. 142 — Mr. C. H. Millard, Canadian Director, United Steelworkers of America.
- Ex. 143 — Mr. C. S. Jackson, President, District 5 Council, United Electrical Radio and Machine Workers of America, (U.E.) — Canadian Section.
- Ex. 144 — Mr. W. F. McLean, President, Canada Packers Limited.
- Ex. 145 — Mr. Donald G. Smith, Field Secretary, Credit Union National Association.
- Ex. 146 — Mr. C. W. McInnis, President, Ontario Hog Producers' Association.
- Ex. 147 — Mr. David S. Holbrook, Executive Vice-President, Algoma Steel Corporation, Limited.
- Ex. 148 — Mr. H. G. Hilton, President, The Steel Company of Canada Ltd.
- Ex. 149 — Mr. A. G. Wright, President, Dominion Foundries & Steel Ltd.
- Ex. 150 — Mr. Gordon Hamblin, President, Confectionery, Chocolate & Cocoa Industries of Canada.
- Ex. 151 — Mr. James S. Duncan, Chairman and President, Massey-Harris-Ferguson Limited.
- Ex. 152 — Mr. R. B. Bradley, President, International Harvester Company of Canada, Limited.
- Ex. 153 — Mr. N. R. Crawford, President, Dow Chemical of Canada, Limited.
- Ex. 154 — Mr. W. M. V. Ash, President, Shell Oil Company of Canada Limited.
- Ex. 155 — Mr. R. M. Sale, President, Ford Motor Company of Canada, Limited.
- Ex. 156 — Mr. E. C. Row, President and General Manager, Chrysler Corporation of Canada, Limited.
- Ex. 157 — Mr. J. M. Pigott, President, Pigott Construction Company Limited.
- Ex. 158 — Mr. L. J. McGowan, Vice-President and General Manager, The Foundation Company of Canada Limited.
- Ex. 159 — Mr. P. N. Gross, President, Gypsum, Lime and Alabastine, Canada, Limited.
- Ex. 160 — Mr. G. T. Klager, President and Managing Director, Dominion Woollens and Worsteds Limited.
- Ex. 161 — Mr. H. M. Turner, President, Canadian Electrical Manufacturers Association.
- Ex. 162 — Mr. J. H. Goss, President, Canadian General Electric Company Limited.
- Ex. 163 — Mr. J. M. Thompson, Vice-President and Comptroller, Canadian Westinghouse Company Ltd.
- Ex. 164 — Mr. O. W. Titus, Vice-President and General Manager, Canada Wire & Cable Company Limited.
- Ex. 165 — Dr. W. H. Watson, Director, The Computation Centre, University of Toronto.
- Ex. 166 — Mr. J. G. Glassco, Clarkson, Gordon & Co.
- Ex. 167 — Mr. E. G. Burton, President, Simpsons Limited.
- Ex. 168 — Mr. F. H. Kortwright, President, The Conservation Council of Ontario.
- Ex. 169 — Mr. D. N. Kendall, President, The Photographic Survey Corporation Limited.
- Ex. 170 — Dr. G. Ross Lord, The Association of Professional Engineers of the Province of Ontario.
- Ex. 171 — Mr. J. S. Duncan, Chairman, The Dollar Sterling Trade Council.
Ex. 171A — The Dollar Sterling Trade Council — (supplementary submission, summary of brief).
- Ex. 172 — Mr. P. J. Chadsey, Chairman, The Security Analysts' Association of Toronto.
- Ex. 173 — Mr. J. D. Cowan, President, Canadian Importers and Traders Association, Inc.
- Ex. 174 — Mr. Irving Fairty, General Counsel, Toronto Transit Commission on behalf of Canadian Transit Association.
- Ex. 175 — Mr. G. B. Smith, Manager and Secretary, The Rubber Association of Canada.
- Ex. 176 — Mr. R. C. Berkinshaw, President and General Manager, The Goodyear Tire & Rubber Company of Canada, Limited.
- Ex. 177 — Mr. Crawford Gordon Jr., President and General Manager, A. V. Roe Canada Limited.
- Ex. 178 — Mr. Harold Evans, President, The Canadian Machine Tool Builders Association.

- Ex. 179 — Hon. C. E. Mapledoram, Minister of Lands and Forests, Ontario, and Mr. G. C. Wardrope, M.L.A., on behalf of Northwestern Ontario Associated Chambers of Commerce, Northwestern Ontario Municipal Association, and Northwestern Ontario Development Association.
- Ex. 180 — Mayor Jean Drapeau, The City of Montreal.
- Ex. 181 — Mr. H. R. Crabtree, President, Primary Textiles Institute.
- Ex. 182 — Mr. G. B. Gordon, President, Dominion Textile Company Limited.
- Ex. 183 — Mr. L. C. Bonnycastle, President, Canadian Cottons Limited.
- Ex. 184 — Mr. Drummond Giles, President and General Manager, Courtaulds (Canada) Limited.
- Ex. 185 — Mr. Gerald L. Bruck, President, Bruck Mills Limited.
- Ex. 186 — Mr. François E. Cleyn, Managing Director, Leach Textiles Limited.
- Ex. 187 — Mr. Gordon R. Ball, President, Bank of Montreal.
- Ex. 188 — Dr. R. H. Common, The Canadian Food Technologists Association.
- Ex. 189 — Dr. Come Carboneau, Gourd-Riverin Syndicate.
- Ex. 190 — Mr. Sam Steinberg, President and Managing Director, Steinberg's Limited.
- Ex. 191 — Mr. Raymond Dupuis, President and Managing Director, Dupuis Frères, Limitée.
- Ex. 192 — Mr. Bruce A. C. Hills, Vice-President, The Canadian Management Council.
- Ex. 193 — Mr. W. H. Durrell, General Manager, Hollinger-Hanna Limited, on behalf of: Iron Ore Company of Canada; Hollinger North Shore Exploration Company Limited; Labrador Mining and Exploration Company Limited.
- Ex. 194 — Mr. A. L. Penhale, President and Managing Director, Asbestos Corporation Limited.
- Ex. 195 — Mr. Bernard Shane, Vice-President, International Ladies' Garment Workers' Union.
- Ex. 196 — Mr. R. E. Powell, President, Aluminum Company of Canada, Ltd.
- Ex. 197 — Mr. W. Taylor-Bailey, President and Managing Director, Dominion Bridge Company, Limited.
- Ex. 198 — Mr. Roger Regimbald, Director, L'Association Professionnelle des Industriels.
- Ex. 199 — Mr. G. Harold Fiske, President, The Canadian Forestry Association.
- Ex. 199A — Mr. J. L. Van Camp, General Manager, Canadian Forestry Association (supplementary submission).
- Ex. 200 — Mr. J. M. Breen, President and General Manager, Canada Cement Company Limited.
- Ex. 201 — Mr. W. N. Hall, Executive Vice-President, Dominion Tar & Chemical Company, Limited.
- Ex. 202 — Dr. J. R. Donald, President, J. T. Donald & Co. Limited.
- Ex. 203 — Mr. H. H. Lank, President, Du Pont Company of Canada Limited.
- Ex. 204 — Mr. H. Greville Smith, President, Canadian Industries Limited.
- Ex. 205 — Dr. R. S. Jane, Vice-President, Shawinigan Chemicals Limited.
- Ex. 206 — Mr. Eliot S. Frosst, President, Charles E. Frosst & Co.
- Ex. 207 — Mr. F. R. Deakins, President, RCA Victor Company, Ltd.
- Ex. 208 — Mr. R. D. Harkness, President, Northern Electric Company Limited.
- Ex. 209 — Mr. K. R. Patrick, President and Managing Director, Canadian Aviation Electronics Ltd.
- Ex. 210 — Mr. S. M. Finlayson, President, Canadian Marconi Company.
- Ex. 211 — Mr. D. G. Schacter, Chairman, National Federation of Canadian University Students Scholarship Committee of Sir George Williams College.
- Ex. 212 — Mr. Fridolin Simard, President, L'Union des Municipalités de la Province de Québec (preliminary submission).
- Ex. 212A — L'Union des Municipalités de la Province de Québec.
- Ex. 213 — Mr. Roméo Martin, President, Le Conseil de la Coopération du Québec.
- Ex. 214 — Mr. Claude Jodoin, President, The Trades and Labor Congress of Canada and Mr. A. R. Mosher, President, the Canadian Congress of Labour (joint submission).
- Ex. 215 — Mr. H. V. Lush, Vice-President, The Canadian Manufacturers' Association.
- Ex. 216 — Mr. J. R. Hughes, President, The Investment Dealers' Association of Canada.
- Ex. 217 — Mr. J. David Stewart, Mayor of Charlottetown, P.E.I. and President, Canadian Federation of Mayors and Municipalities.
- Ex. 218 — Mr. W. C. Norris, Chairman of the Board and President, Canadian Trucking Associations, Inc.
- Ex. 219 — Mr. Camille Archambault, Assistant to the President and Director of Public Relations, L'Association du Camionnage du Québec Inc.
- Ex. 220 — Mr. Roy Halliday, President, The Canadian Lumbermen's Association.
- Ex. 221 — Mr. J. W. B. Sisam, President, The Canadian Institute of Forestry.

- Ex. 222 — Mr. Walter C. Koerner, President, Alaska Pine & Cellulose Limited.
- Ex. 223 — Mr. R. L. Weldon, President, Bathurst Power & Paper Company Limited.
- Ex. 224 — Mr. J. G. Crean, President, The Canadian Chamber of Commerce.
- Ex. 225 — Mayor Charlotte Whitton, The City of Ottawa.
- Ex. 226 — Miss Charlotte Whitton, Mayor, City of Ottawa (personal submission).
- Ex. 227 — Mr. C. A. Pollack, President, Radio-Electronics-Television Manufacturers Association of Canada.
- Ex. 228 — Mr. R. M. Brophy, President, Philips Canadian Industrial Development Company Limited.
- Ex. 229 — Mr. Harry D. Greb, President, The Shoe Manufacturers' Association of Canada.
- Ex. 230 — Mr. W. J. LeClair, President, Canadian Federation of Property Owners' Associations.
- Ex. 231 — Dr. J. C. Griffin, General Director, Canadian Mental Health Association.
- Ex. 232 — Mr. W. Gordon Wood, First Vice-President, Canadian Tourist Association.
- Ex. 233 — Mr. R. F. Legget, Chairman, Associate Committee on the National Building Code, National Research Council.
- Ex. 234 — Mr. J. Norman Hyland, President, Fisheries Council of Canada.
- Ex. 235 — Mr. Ralph S. Staples, President, The Co-operative Union of Canada and Mr. Leo Bérubé, Secretary, Le Conseil Canadien de la Coopération (joint submission).
- Ex. 236 — Mr. Peter Martin, President, N.F.C.U.S. and Mr. Harry Arthurs, Chairman, National Scholarship Committee of the National Federation of Canadian University Students.
- Ex. 237 — Mr. A. M. MacKay, Chairman, The Maritimes Transportation Commission.
- Ex. 238 — Mr. R. F. Chisholm, Chairman, Canadian Conference on Wholesale Distribution.
- Ex. 239 — Mr. Leslie Morris, Organizational Secretary, Labour-Progressive Party.
- Ex. 240 — Mr. H. H. Hannam, President and Managing Director, The Canadian Federation of Agriculture.
- Ex. 241 — Mr. Lloyd Jasper, President, The Ontario Federation of Agriculture.
- Ex. 242 — Mr. H. K. Leckie, Secretary, The Meat Packers Council of Canada.
- Ex. 243 — Mr. Arthur May, Managing Director, The Institute of Edible Oil Foods.
- Ex. 244 — Mr. Lewis J.-B. Forbes, President, The Canadian Association of British Manufacturers and Agencies.
- Ex. 245 — Dr. J. R. Mutchmor, Secretary, Board of Evangelism and Social Service, The United Church of Canada.
- Ex. 246 — Mrs. H. R. Kemp, Vice-President, The Canadian Association of Consumers.
- Ex. 247 — Mr. Stewart Bates, President, Central Mortgage and Housing Corporation.
- Ex. 248 — Mr. A. G. Bailey, Vice-President and Director, Bailey Selburn Oil & Gas Ltd.
- Ex. 249 — Mr. Nels Thibeault, President, International Union of Mine, Mill and Smelter Workers in Canada.
- Ex. 250 — Dr. W. A. Mackintosh, Chairman, Finance Committee, The National Conference of Canadian Universities.
- Ex. 251 — Mr. T. W. Eadie, Chairman, The Trans-Canada Telephone System.
- Ex. 252 — Mr. E. M. Henry, Consultant, The Township of Trafalgar, Ontario.
- Ex. 253 — Mr. E. C. Gill, President, The Canadian Life Insurance Officers' Association.
- Ex. 254 — Mr. A. Turner Bone, President, The Canadian Construction Association.
- Ex. 255 — Mr. W. A. Dempsey, Regional Supervisor, Ontario Division, Community Planning Association of Canada.
- Ex. 256 — Mr. J. L. Van Camp, The Canadian Conservation Association.
- Ex. 257 — Mr. Gilbert A. LaBine, President, Gunnar Mines Limited.
- Ex. 258 — Mr. G. G. Croskery, Secretary-Treasurer, Canadian Teachers' Federation.
- Ex. 259 — Mr. Ernest Smith, General Representative, A.U.C., and Chairman, C.A.R., Amalgamated Unions of Canada and Canadian Association of Railwaymen.
- Ex. 260 — Mr. L. A. Wright, General Secretary, The Engineering Institute of Canada.
- Ex. 261 — Mr. J. A. Wilson, Chairman, Board of Governors, The Canadian Tax Foundation.
- Ex. 262 — Dr. E. W. R. Steacie, President, National Research Council.
- Ex. 263 — Professors G. E. Britnell, V. C. Fowke, Mabel F. Timlin and K. A. H. Buckley, University of Saskatchewan.
- Ex. 264 — Mr. T. B. Fraser, The Chamber of Commerce of the District of Baie Comeau, supported by the Eastern and Western Chambers of "the North Shore", Saguenay County, Que. and also by the Chamber of Commerce of the South Shore.
- Ex. 265 — Prof. Albert Faucher, The Committee on Industrial Development for the Federation of Abitibi Chambers of Commerce.
- Ex. 266 — Mr. H. V. Lush, Chairman, Council of Profit Sharing Industries.
- Ex. 267 — Miss Gladys J. Sharpe, President, Canadian Nurses' Association.
- Ex. 268 — Prof. V. C. Fowke, President, Canadian Association of University Teachers.
- Ex. 269 — Mr. H. G. Dustan, Chairman, Newfoundland Fisheries Development Authority.

- Ex. 270 — Mr. Eric Harvey, Secretary Manager, The Newfoundland Fish Trades Association of Newfoundland.
- Ex. 271 — Mr. L. R. Brooks, Assistant Manager, Newfoundland Associated Fish Exporters Limited.
- Ex. 272 — Mr. Arthur Edgcombe, Chairman, Newfoundland Branch, Canadian Manufacturers' Association, Inc.
- Ex. 273 — Mr. Arthur Johnson, The Vice-President for Newfoundland of Atlantic Provinces Economic Council.
- Ex. 274 — Mr. H. Herlof Smith, Industrial and Port Commissioner, The Saint John Board of Trade.
- Ex. 275 — Mr. Leander Manley, Secretary Manager, Canadian Pulp and Paper Association (Western Division).
- Ex. 276 — Mr. J. A. Cameron, President, Western Canada Reclamation Association.
- Ex. 276A — Mr. G. O'Shaughnessy, Secretary-Manager, Western Canada Reclamation Association, on behalf of British Columbia Section, Western Canada Reclamation Association.
- Ex. 277 — Mr. R. H. A. Lacey, Executive Secretary, The Medicine Hat Chamber of Commerce.
- Ex. 278 — Mr. E. Knutson, President, Saskatchewan Motor Dealers' Association.
- Ex. 279 — Mr. C. K. Bantock, Manager, The British Columbia Chamber of Commerce.
- Ex. 280 — Mr. R. E. Walker, Manager, Retail Merchants' Association (Saskatchewan) Incorporated.
- Ex. 281 — Mr. R. T. Rose, General Manager, The Vancouver Board of Trade.
- Ex. 282 — Mr. J. Schulz, Chairman, The Interprovincial Farm Union Council.
- Ex. 283 — Mr. Cecil Lamont, President, The North-West Line Elevators Association.
- Ex. 284 — Mr. Charles Crate, Corresponding Secretary and Research Director, The Yellowknife District Miners' Union, Local 802, International Union of Mine, Mill and Smelter Workers (Canada).
- Ex. 285 — Mr. G. L. Knox, President, The California Standard Company.
- Ex. 286 — Mr. D. C. Campbell, President, The Canadian Association of Equipment Distributors.
- Ex. 287 — Mr. Hugh T. Lemon, Secretary-Treasurer, The Town Planning Institute of Canada.
- Ex. 288 — Mr. H. J. Badden, Secretary-Treasurer, The Canadian Truck Trailer Manufacturers' Association.
- Ex. 289 — Mr. J. Fewlry, General Secretary, Committee Examining Need for Engineering Society proposed to be called "The Chartered Engineers of Ontario".
- Ex. 290 — Mr. J. P. Nowlan, Vice-President, McPhar Geophysics Limited.
- Ex. 291 — Mr. Jules Breton, Manager, L'Association Forestière Québécoise, Inc.
- Ex. 292 — Mr. L. Z. Rousseau, La Faculté d'Arpentage et de Génie Forestier et Le Fonds de Recherches Forestières de l'Université Laval.
- Ex. 293 — Mr. T. J. Allard, Executive Vice-President, The Canadian Association of Radio and Television Broadcasters.
- Ex. 294 — Mr. J. Mitchell, President, The Canadian Industrial Traffic League (Incorporated).
- Ex. 295 — Mr. W. A. Wecker, President, General Motors of Canada, Limited.
- Ex. 296 — Mr. R. Davidson, General Manager, National Association of Master Plumbers and Heating Contractors of Canada, Inc.
- Ex. 297 — Miss E. G. MacGill, Consulting Engineer, Toronto, Ont.
- Ex. 298 — Messrs. T. R. Bleiler and J. W. Goodall, Fort Simpson, N.W.T.
- Ex. 299 — Mr. E. L. R. Williamson, Consulting Economist, Brockville, Ont.
- Ex. 300 — Mr. R. P. Sparks, Tariff Consultant, Ottawa, Ont.
- Ex. 301 — Messrs. Geo. Bevington and H. E. Nichols, Edmonton, Alta.
- Ex. 302 — Mr. P. J. Perry, Winnipeg, Man.
- Ex. 303 — Mr. Walter K. Gross, Vancouver, B.C.
- Ex. 304 — Mr. W. T. House, West Gravenhurst, Ont.
- Ex. 305 — Mr. C. M. Campbell, Consulting Mining Engineer, Vancouver, B.C.
- Ex. 306 — Mr. D. F. MacRae, Director, Department of Industrial Research Services, Ontario Research Foundation.
- Ex. 307 — Mr. David Peddie, Vancouver, B.C.
- Ex. 308 — Mr. P. Ackerman, Consulting Electrical Engineer, Montreal, P.Q.
- Ex. 308A — Mr. P. Ackerman, Consulting Electrical Engineer, Montreal, P.Q. (supplementary submission).
- Ex. 309 — Messrs. C. Ross Anderson, Frank R. Chapman Jr. and associates, Toronto, Ont.
- Ex. 310 — Mr. Dan McCallum, Vancouver, B.C.
- Ex. 311 — Mr. W. M. Mercer, President, Wm. M. Mercer Limited.
- Ex. 312 — Miss Marion Gilroy, Convenor, Libraries and Creative Arts Committee, The Canadian Federation of University Women.
- Ex. 313 — Mr. P. R. Robinson, Manager, The Canadian Food Processors Association.

- Ex. 314 — Mr. F. G. Ardouin, President, The Professional Institute of the Public Service of Canada.
- Ex. 315 — Mr. André Scipio, Chairman, Committee for Brief on Canada's Economic Prospects, Canadian Exporters' Association.
- Ex. 316 — Mr. George Mansfield, Manager, Periodical Press Association.
- Ex. 317 — Mr. G. R. Fanset, Industrial Commissioner, The Industrial Development Board of Greater Winnipeg.
- Ex. 318 — Mr. D. S. Keen, Secretary, The Canadian Institute of Stove and Furnace Manufacturers.
- Ex. 319 — Mr. R. W. Nesbitt, Secretary, The Mining Association of British Columbia.
- Ex. 320 — Mr. W. E. Hobbs, Winnipeg.
- Ex. 321 — Mr. F. H. Hall, Chairman Negotiating Committee, Associated Unions Representing Non-Operating Railway Employees.
- Ex. 322 — Mr. J. R. Kidd, Director, Canadian Association for Adult Education.
- Ex. 323 — Mr. H. T. Renouf, Manager, The Newfoundland Board of Trade.
- Ex. 324 — Dr. C. H. Goulden, President, Agricultural Institute of Canada.
- Ex. 325 — Mr. S. W. Eakins, Executive Secretary and Treasurer, Association of Ontario Mayors and Reeves.
- Ex. 326 — Mr. André Gariépy, Head of the Secretariat, L'Union des Mutuelles-Vie Françaises d'Amérique.
- Ex. 327 — Mr. J.-B. Lemoine, General President, L'Union Catholique des Cultivateurs.
- Ex. 328 — Mr. Fridolin Simard, President, La Chambre de Commerce de la Province de Québec.
- Ex. 329 — Mr. I. C. Pollack, Chairman, Committee for preparation of Brief, La Chambre de Commerce de Québec.
- Ex. 329A — La Chambre de Commerce de Québec (supplementary submission — maps and graphs).
- Ex. 330 — Mr. P. Grenier, Industrial Commissioner, Le Conseil d'Orientation Économique, Saguenay-Lac St-Jean.

DIVISION OF MANUFACTURING CLASSIFICATION BY SUB-GROUPS

<i>Primary</i>	<i>Secondary</i>	
		<i>Foods and beverages</i>
x		Canning and processing
x		Dairy products
x		Grain mill products
x		Meat products
	x	Bakery products
	x	Beverages
	x	Other food industries
		<i>Tobacco and tobacco products</i>
	x	Tobacco, cigars and cigarettes
	x	Tobacco processing and packing
		<i>Rubber products</i>
	x	
		<i>Leather products</i>
	x	Footwear, leather
	x	Gloves and mittens, leather
	x	Leather tanning
	x	Other leather industries
		<i>Textile products (except clothing)</i>
	x	Cotton goods
	x	Woollen goods
	x	Synthetic textiles and silk
	x	Other primary textiles
	x	Other textile industries
		<i>Clothing (textile and fur)</i>
	x	Men's, women's and children's clothing
	x	Knitted goods
	x	Miscellaneous clothing
		<i>Wood products</i>
x		Saw and planing mills
	x	Furniture
	x	Other wood industries
		<i>Paper products</i>
x		Pulp and paper
	x	Boxes and bags, paper
	x	Roofing paper
	x	Miscellaneous paper goods
		<i>Printing, publishing and allied industries</i>
	x	Commercial printing
	x	Engraving, stereotyping and allied industries
	x	Printing and publishing

Primary Secondary (Continued)

Iron and steel products

x	Agricultural implements
x	Boilers, tanks and platework
x	Bridge building and structural steel
x	Castings, iron
x	Hardware, tools and cutlery
x	Heating and cooking apparatus
x	Machinery, household, office and store
x	Machinery, industrial
x	Machine shops
x	Machine tools
x	Primary iron and steel
x	Sheet metal products
x	Wire and wire goods
x	Miscellaneous iron and steel products

Transportation equipment

x	Aircraft and parts
x	Bicycles and parts
x	Boat building
x	Carriages, wagons and sleighs
x	Motor vehicles
x	Motor vehicle parts
x	Railway rolling stock
x	Shipbuilding

Non-ferrous metal products

x	Non-ferrous metal smelting and refining
x	Aluminum products
x	Brass and copper products
x	Jewellery and silverware
x	White metal alloys
x	Miscellaneous non-ferrous metal products

Electrical apparatus and supplies

x	Batteries
x	Radios and radio parts
x	Refrigerators, vacuum cleaners and appliances
x	Machinery, heavy electrical
x	Miscellaneous electrical apparatus and supplies

Non-metallic mineral products

x	Abrasives, artificial
x	Cement, hydraulic
x	Salt
x	Stone products
x	Asbestos products
x	Clay products from domestic clay
x	Clay products from imported clay
x	Concrete products
x	Glass and glass products
x	Gypsum products
x	Lime
x	Sand-lime brick
x	Miscellaneous non-metallic mineral products

Products of petroleum and coal

x	Coke and gas products
x	Petroleum products
x	Miscellaneous products of petroleum coal

Primary Secondary (Concluded)

		<i>Chemicals and allied products</i>
x		Acids, alkalis and salts
x		Fertilizers
x		Primary plastics
	x	Medicinal and pharmaceutical preparations
	x	Paints, varnishes and lacquers
	x	Soaps, washing compounds and cleaning preparations
	x	Toilet preparations
	x	Vegetable oils
	x	Other chemical industries
		<i>Miscellaneous industries</i>
	x	Brooms, brushes and mops
	x	Clocks, watches and watch cases
	x	Fountain pens and pencils
	x	Musical instruments
	x	Plastic products
	x	Scientific and professional equipment
	x	Sporting goods
	x	Toys and games
	x	Typewriter supplies
	x	Other miscellaneous industries

If the above classification is applied to manufacturing industry statistics for the year 1953, the following totals are obtained:

Total employees (thousands)	Total earnings (\$ million)	Value-added (\$ million)	Gross Value of Production (\$ million)
<i>Primary</i>			
285.2	851.0	2,017.0	5,495.0
21.5%	21.5%	25.2%	30.9%
<i>Secondary</i>			
1,042.3	3,106.0	5,976.0	12,290.0
78.5%	78.5%	74.8%	69.1%

TAXATION OF THE OIL AND GAS INDUSTRY

THE COMMISSION did not undertake an exhaustive study of the effects which taxation of personal and corporate incomes have had and are having upon investment in primary and other industry in Canada. However, we did arrange for a study, *Certain Aspects of Taxation Relating to Investment in Canada by Non-Residents*, to be prepared, and this may be referred to by those interested in these matters. A number of qualified witnesses appeared before us in the course of our public hearings and expressed views on this and related subjects. It seems clear from the evidence that taxation of personal and corporate incomes at present rates does create problems respecting investment by Canadians in Canadian industry. This seems to be true in particular in the oil and gas industry, on which we heard many submissions and proposals. While, therefore, we do not propose to offer suggestions or to comment upon taxation policies in general, it may be helpful if we report our conclusions respecting the taxation of this one industry, the potential growth and importance of which seems hardly yet to be realized by many people in this country.

Three important criticisms were offered of our tax system insofar as the oil and gas industry is concerned, namely:

- (a) Canadians are at a disadvantage vis-à-vis the United States operators in the Canadian oil and gas field.
- (b) Certain acquisition and property costs are not allowed as deductions in computing taxable income.
- (c) The method of computing depletion allowances is not as favourable in Canada as in the United States and, furthermore, it gives a substantial advantage to the large integrated oil companies as compared with the independent producers. (Mining companies which are engaged in the exploration and development end of the oil and gas industry enjoy the same advantage under our tax laws.)

Very generous tax treatment is given in the United States to individuals and to companies who invest in the oil and gas industry. For example, an individual with a large income, part of which is taxable at rates of, say, 80 per cent or even higher, may invest in oil wells and deduct any part of his expenditure which proves to be unproductive from the amount of his income which is subject to tax. This means that it costs such an indivi-

dual only 20 cents or less out of every dollar which he spends unsuccessfully in looking for oil either within the confines of the United States or elsewhere; the balance is a special tax concession under the United States tax laws. Similarly the established United States oil companies, which spend by far the largest sums in exploration and development work throughout the world, receive very favourable tax treatment in comparison with other United States industries. To this extent the United States government may be said to be encouraging a world-wide search for oil by United States citizens and United States oil companies. This quite obviously is a perfectly reasonable and proper course for the United States authorities to adopt if they so wish. Undoubtedly their policy has provided a tremendous stimulus to the United States oil and gas industry as a result of which great discoveries have been made and great developments have occurred in many parts of the world, including Canada, which otherwise would not have happened or, at least, would not have happened nearly so quickly. It is quite true that these tax policies place United States citizens and United States oil companies in a preferred position in searching for oil in Canada, compared with Canadian citizens and Canadian companies. But this does not mean that Canada should necessarily adopt the same policy. While we have a vital interest in the development of the oil and gas industry in this country, we have a vital interest in the development of many other industries as well. It would be an unwise practice for Canada to start favouring one industry over others through tax concessions merely because this is being done in the United States for reasons which, in that country, may be perfectly valid.

There seem to be two ways in which this problem might be dealt with. One would be to require all foreigners who wish to do business or to hold or develop resources in Canada to incorporate their businesses in this country under the federal or under one of the provincial companies acts. However, there would be no assurance that this action would necessarily negate the tax advantages which United States citizens and United States companies enjoy at present under the tax laws of their own country. An alternative approach and one which we think would be a better one would be to devise some formula for giving companies in which Canadian citizens participate some special concessions under certain circumstances and conditions. Ways in which this might be done are discussed in Chapter 18.

The second criticism of our taxation policies with respect to the oil and gas industry is that operators in this industry in computing their taxable income are not allowed to deduct the acquisition costs of unproductive property other than the original payments to the Crown for leases which have been abandoned as unproductive and for rentals up to \$1 per acre per annum. This criticism would seem to have some validity, provided that the amount which the operators may be entitled to claim as deductions with respect to property costs was limited to the cost of the property to the

original company or individual who acquired it. Without some such restriction there might be a pyramiding of acquisition costs through sales from one company or individual to another.

The third important criticism of our tax policies with respect to the oil and gas industry has to do with the way in which the depletion allowance is computed. The allowance for depletion to the extractive industries in Canada has served two purposes. In the first place, it permits companies in these industries to recoup out of income that part of their acquisition costs which they are not allowed to deduct in computing their taxable income. The second and much more important purpose of the depletion allowance is to provide a special incentive to the extractive industries to compensate them for the risks which are inherent in any mining enterprise. In the case of the oil industry in Canada, there is not only the risk that no oil or gas will be found, but even if an operator is successful in finding oil or gas, any substantial income therefrom may have to be deferred for some years until adequate markets can be found. These are important considerations, although the time may come when it is felt that the primary industries are sufficiently well established in Canada to do without special concessions. If it is felt that this time has not yet arrived, consideration might be given to changing the form of the special tax incentive which is at present being accorded to the extractive industries. Instead of being granted an allowance for depletion, they might be charged a lower rate of tax on that portion of their profits which is dependent upon risk taking, i.e., the profits from the producing end of the business after all charges and costs pertaining to that part of the business have first been deducted.

An alternative approach would be to continue the present principle of granting a depletion allowance at some appropriate rate but computing it the same way as in the United States. In that country a stated percentage of the gross profits from production is exempted from tax. In Canada, at the present time, no allowance is granted for depletion until all accumulated expenditures on exploration and development have first been exhausted as deductions in computing taxable income. This gives a considerable advantage to the large integrated oil companies vis-à-vis the independent operators in the exploration and development field. The former are permitted to offset their exploration and development expenditures against their total income, including their income from refining and marketing. In this way, their exploration and development expenditures may be immediately financed to a considerable extent by tax money, i.e., out of monies which otherwise would have to be paid as taxes on profits earned in other spheres of activity. Furthermore, because these expenditures by the integrated companies become fully claimed earlier than in the case of taxpayers who are producers only, the integrated companies become entitled to a depletion allowance sooner than the independent

producers. In effect this means that they obtain a depletion allowance on a larger proportion of the profits earned on the oil or gas which they discover than the independents do. This differential would be removed, at least in part, by the adoption of the method used in the United States.

Quite apart from the way in which the depletion allowance is computed, there is the question of whether it is reasonable to permit the large integrated oil companies to deduct their exploration and development costs from their total income in view of the advantage it gives them over independent producers. To an important extent, it seems that the appropriate decision on this question must depend upon the decision which is taken respecting the rate of depletion allowance and the way it is computed (or, alternatively, upon the rate of tax imposed upon the profits earned from production activities). If the depletion allowance is sufficient to provide an adequate incentive for all the exploration and development work that is thought to be desirable, then it may not be necessary or even logical to give a further incentive to the large integrated oil companies. If, however, the depletion allowance decided upon is a relatively moderate one, then this additional incentive to the large companies may be necessary if the desired amount of exploration and development work is to go on.

MUNICIPAL FINANCE

DURING THE course of our hearings, we received many representations from or on behalf of local units of government — municipalities, school corporations and the like. There was clearly widespread concern about the financial position of these local units and their ability to support the increasing responsibilities which population growth, urbanization, and the rise in motor vehicle registrations were thrusting upon them.

Much of the expenditure on social capital which we have forecast seems likely to fall on local governments. We have, as it were, presented them with a large bill for the future. They may legitimately ask us whether we have any notion of how all these fine things are to be paid for.

Nearly 20 years ago, the Rowell-Sirois Commission made some observations about municipal finance which have grown only more cogent with the passage of time. After outlining the different ways in which municipal government had developed in different parts of Canada, the Commission went on to say,

“Even more important than the variations between provincial systems is the great and increasing spread between kinds of municipalities. Metropolitan centres, tiny hamlets, and sparsely populated rural areas are all known as municipalities. It is obvious that their problems must differ greatly in degree and in kind. We cannot, in fact, speak of *the* municipal problem; there are municipal problems characteristic of certain regions and of certain provincial systems, problems characteristic of certain types and classes of municipalities, and problems associated with individual municipalities in special circumstances. The particular revenue, expenditure, or debt factors which may be of dominating importance in one case may have little relevance in another, and sweeping generalizations are thus of very limited utility”.¹

(It may be noted in passing that an astonishing number of the Commission's conclusions with respect to municipal government and municipal finance — those, for instance, relating to the size of governmental units in metropolitan and rural areas — seem just as relevant today, when most of the major problems stem in one way or another from rapid economic growth, as they did in the far different situation of the late 1930's.)

Notwithstanding the wisdom of the above-quoted remarks, a good deal of generalizing continues to be done about municipal finance. It has been represented to us that, by and large, Canadian municipalities — particularly those which are urban or partly urban in fact, if not always in name — are under financial strain, that they are finding it increasingly difficult to fulfill their expenditure responsibilities.

Table I

STATISTICS OF MUNICIPAL^a FINANCE

(\$ millions)

	1933	1939	1945	1953	1954	(Est.) 1955	(Est.) 1956
Real property taxes	230	242	263	581	627	683	743
Unconditional grants and subsidies from other governments ^b	—	5	8	28	41	42	47
Other current revenue	63	73	91	223	240	266	279
Total current revenue ^c	293	320	362	832	908	991	1,069
Total current expenditure ^c	320	328	354	820	914	979	1,067
General debenture debt (net) ^d (end of year)	881	789	623	1,269	1,479	1,658	1,851

a Municipalities and school corporations.

b Includes general subsidies and grants in lieu of taxes.

Specific grants and shared-cost contributions from provinces to municipalities (see Table II below) are excluded from revenue, and corresponding amounts are excluded from expenditure.

c Revenues and expenditures of water, transit and other utilities deemed to be largely or wholly self-supporting are not included in total revenue and expenditure except to the extent of deficits or surpluses financed by, or contributed to, the municipalities concerned.

d This consists of total direct debenture debt less sinking funds, after deduction of the net debt of public utilities. Public utilities debt is deducted because it is not serviced from what is here shown as current revenue.

SOURCE: Bank of Canada *Statistical Summary*.

Various pieces of circumstantial evidence may be brought forward to support this view. The backlog of municipal capital works and urban land servicing is one. The increasing degree of dependence on grants and subsidies from higher levels of government is another.

Table II

PROVINCIAL SPECIFIC GRANTS AND SHARED COST
CONTRIBUTIONS TO MUNICIPALITIES AND SCHOOL
CORPORATIONS

(\$ millions)

	Fiscal years:				
For:	1939-40	1945-46	1953-54	1954-55	1955-56
Education	18.2	44.5	149.6	172.0	216.5
Highways, streets, etc.	4.6	7.3	38.6	44.2	49.3
Relief	35.9	3.1	6.3	7.4	7.7
Other public welfare	0.2	0.4	6.4	7.5	8.4
All other	0.4	0.7	7.8	3.8	3.9
Total	59.3	56.0	208.7	234.9	285.8

SOURCE: Provincial public accounts.

In looking for more direct evidence, we may appropriately turn to an examination of real property taxation, which before the War accounted for over three-quarters of municipal current revenue, and which even today, in spite of the increased importance of unconditional grants and subsidies and of non-property taxes, provides just under 70 per cent of the total.* For purposes of review, it seems better use 1939 rather than 1945 as the starting point. In 1945, municipalities were reaching the end of what was for many of them a period of artificial financial ease, during which they were not called upon to do many of the things that would otherwise have been expected of them. While the War lasted, expenditure, particularly of a capital nature, was discouraged as part of the broader effort to restrain non-war claims on available goods and services. A large number of municipalities wisely seized the opportunity to achieve substantial reductions in their outstanding debt.

Table III

REAL PROPERTY TAX REVENUES— MUNICIPALITIES AND SCHOOL CORPORATIONS

	1933	1939	1945	1953	1954	(Est.) 1955	(Est.) 1956
In millions of current dollars.....	230	242	263	581	627	683	743
Per capita, in current dollars.....	21.6	21.5	21.8	39.2	41.1	43.6	46.6
Per capita, in constant 1935-39 \$.....	22.9	21.2	18.2	21.1	22.0	23.3	24.5

SOURCE OF ORIGINAL DATA: Bank of Canada *Statistical Summary*. Per capita figures in current dollars are obtained by dividing by the total population of the ten provinces. This results in a slight overstatement in that parts of some provinces are not municipally organized. Conversion to constant dollars is by way of the consumer Price Index, recalculated on the base 1935-39=100.

In current dollar terms, real property tax revenue rose from \$242 million in 1939 to an estimated \$743 million in 1956. But in constant-dollar-per-capita terms — adjusting, that is, for population growth and price increases — the rise was only a modest one: from about 21 pre-war dollars per head in 1939 to between 24 and 25 pre-war dollars per head in 1956. Over the same period, “real” national income per capita rose by 72 per cent.² Comparison with other commonly used indicators of economic growth shows similar large disparities.

This is generalizing on a grand scale. It would not take long to find particular municipalities — fast-growing urban fringe municipalities, for example — where the rise in the real per capita burden of property taxation has been much more impressive. But conversely, there must be other municipalities where this same burden is today little if at all greater than it was in 1939.

* If provincial specific grants and shared-cost contributions are included in revenue, real property taxation would appear to have declined from about 65 per cent of total revenue in 1939 to between 50 per cent and 60 per cent in 1956.

Not all municipal capital works are financed by borrowing, but most of them are. Periods of heavy expenditure on such things as new roads, schools, and sewer and water facilities are therefore periods when municipal debt tends to rise rapidly.

Over the years, investors, and provincial departments and agencies charged with regulating municipal affairs, have come to attach considerable importance to certain indices and ratios relating to municipal debt. One of these is the ratio of debt to assessment. By this criterion, the debt load carried by a good many municipalities today does indeed seem heavy. But there is an alternative interpretation: assessment may be too low. The indicated prescription in some cases may be, not a curtailment of borrowing, but an early reassessment.

Even in constant-dollar-per-capita terms, as in Table IV, municipal debt is considerably larger today than it was in 1945. But it is still little if any larger than it was in 1939. True, the debt load carried by municipalities at the end of the depression was an onerous one. Again, however, regard must be had to the growth of real wealth that has occurred since those times.

Table IV

MUNICIPAL^a DEBT AND DEBT CHARGES

	1933	1939	1945	1953	1954	(Est.) 1955	(Est.) 1956
A—General debenture debt [net]							
(end of year)							
—in millions of dollars.....	881	789	623	1,269	1,479	1,658	1,851
—per capita, in current dollars.....	82.9	70.2	51.6	85.6	96.9	105.8	115.4
—per capita, in constant 1935-39 dollars	87.8	69.2	43.2	46.1	51.9	56.5	60.8
B—Debt charges as % of current expenditure							
Interest charges.....	19	16	10	6	6	6	6
Debt retirement charges.....	10	11	10	9	10	10	10
Total.....	29	27	20	15	16	16	16

^a Includes school corporations.

SOURCES: As for Table III.

We do not wish to draw too many conclusions from these figures. Undoubtedly, the debt position of some municipalities gives good grounds for concern. But provided no major recession lies ahead, the *total* municipal debt burden does not as yet appear alarming.

Returning to real property taxation, it seems clear that in *general*, revenue from this source has failed by a wide margin to keep pace with the growth of the economy. Can any *general* explanation be adduced for this? Is there something inherent in the nature of real property taxation

which prevents it from responding adequately to economic growth? Have municipalities been forced onto short rations by the higher levels of government?

Reference is often made to the division of the "tax dollar". It is stated that the Federal Government's share of the tax dollar has increased and the municipal share has decreased. It is argued that this is the essence of the municipal financial problem, that the situation cannot be materially improved unless the Federal Government agrees to take a smaller portion.

We would prefer to describe the position in a somewhat more qualified manner. The tax dollar, it must be remembered, is a figure of speech — a shorthand expression for the total amount of tax revenue collected by all three levels of government. It is a misleading figure of speech in that it suggests the existence of a constant pie to be divided. In fact, the total of tax revenue varies substantially over time, depending on economic circumstances and public attitudes. Its size is responsive to changes in national income and in the public's disposition to demand — and pay for — services which are provided and which in many cases can only be provided on a community basis.

Over the last 20 years, as is well known, the federal tax "take" has increased greatly. (So have federal responsibilities, notably with respect to defence and social services.) But over the same period, the economy in general has grown. Real personal and national income have increased — standards of living have improved. By almost any acceptable measure, the nation's taxable capacity must be said to have risen very considerably.

In Table V, taxation by all three levels of government is related to national income. Between 1939 and 1956, total taxation as a percentage of national income rose from 21.8 to 30.1. The federal percentage in 1956 was 21.4, as against 10.7 in 1939; the provincial percentage 4.7, as against 4.6 in 1939; and the municipal percentage 4.0, as against 6.5 in 1939. If federal taxes transferred unconditionally to the provinces are deducted from total federal taxes and added to provincial taxes, the 1956 percentages become: federal, 19.8; provincial, 6.2.

In part 'C' of the table, provincial and municipal taxes are expressed as percentages of national income less federal taxes. Between 1939 and 1956, the provinces increased their share of this residual from 5.2 per cent to 5.9 per cent; but the municipal share declined, on balance, from 7.2 per cent to 5.1 per cent. The combined provincial-municipal share was 11.0 per cent in 1956, compared with 12.4 per cent in 1939. Proportionately, and in terms of the taxes which they actually collected themselves, the provinces and municipalities together were making less use of what was, so to speak, left over after the federal tax-gatherers had made their rounds. If, however, federal taxes transferred unconditionally to the provinces are counted as provincial taxes, then the provincial-municipal share

of the adjusted residual was higher than before the War: 12.8 per cent in 1956, as against 12.4 per cent in 1939.

One's interpretation of these crude and wholesale calculations depends, of course, on one's views as to the total burden of taxation (which views should in turn be related to some opinion concerning the range and quality of services which governments should be asked to provide). What can be affirmed is that presented in this light, against a background of economic growth, the "squeeze" exerted by the Federal Government on the taxable capacity available to municipalities appears a less absolute constriction than it does in the context of the tax dollar.

Table V

NATIONAL INCOME AND TAXATION

(NOTE: The figures in brackets indicate the results obtained when Federal Taxes transferred unconditionally to the Provinces are deducted from total Federal Taxes and added to Provincial Taxes)

A—millions of current \$	1933	1939	1945	1953	1954	1955	1956
Net national income	2,452	4,373	9,840	19,133	18,794	20,740	23,049
Federal taxes ^a	280	467	2,168	4,220	4,039	4,336	4,923
	(280)	(467)	(2,078)	(3,912)	(3,709)	(4,007)	(4,564)
Provincial taxes	116	203	226	782	831	956	1,078
	(116)	(203)	(316)	(1,090)	(1,161)	(1,285)	(1,437)
Municipal taxes ^b	260	283	308	717	772	845	919
Net national income less federal taxes	2,172	3,906	7,672	14,913	14,755	16,404	18,126
	(2,172)	(3,906)	(7,762)	(15,221)	(15,085)	(16,733)	(18,485)
B—as % of net national income							
Federal taxes ^a	11.4	10.7	22.0	22.1	21.5	20.9	21.4
	(11.4)	(10.7)	(21.1)	(20.5)	(19.7)	(19.3)	(19.8)
Provincial taxes	4.7	4.6	2.3	4.1	4.4	4.6	4.7
	(4.7)	(4.6)	(3.2)	(5.7)	(6.2)	(6.2)	(6.2)
Municipal taxes ^b	10.6	6.5	3.1	3.7	4.1	4.1	4.0
Total—all taxes	26.7	21.8	27.4	29.9	30.0	29.6	30.1
C—as % of net national income less federal taxes							
Provincial taxes	5.3	5.2	2.9	5.2	5.6	5.8	5.9
	(5.3)	(5.2)	(4.1)	(7.2)	(7.7)	(7.7)	(7.8)
Municipal taxes ^b	12.0	7.2	4.0	4.8	5.2	5.2	5.1
	(12.0)	(7.2)	(4.0)	(4.7)	(5.1)	(5.0)	(5.0)
Total of provincial and municipal taxes	17.3	12.4	6.9	10.0	10.8	11.0	11.0
	(17.3)	(12.4)	(8.1)	(11.9)	(12.8)	(12.7)	(12.8)

^a Includes Old Age Security taxes.

^b Includes non-property taxes.

SOURCE: Dominion Bureau of Statistics, *National Accounts — Income and Expenditure*, 1926-50 and 1950-56.

It may be that public reaction to the heavier load of taxation now in comparison with pre-war times has been disproportionately directed at local governments. If this is so, one reason may be that most of the tax revenue of local governments is still demanded from the public in

annual lumps whereas the federal and provincial governments rely to a larger extent on levies of a "hidden" or pay-as-you-go nature. Another reason may be that in the process of growing bigger, the federal and provincial governments have also grown more remote. Correctly or incorrectly, the taxpayer may feel that his individual voice counts for little in these lofty spheres, at any rate between elections. Instead, he may pick up the telephone and vent his spleen on his local alderman or councillor. Municipal spokesmen often say that they are at the grass-roots level — in touch with the people. While this is certainly a legitimate cause for satisfaction, there is another side to the coin. To be close to the people is also to be within uncomfortably short range of vocal individuals and minorities.

What of the inherent "growth responsiveness" of real property taxation? In considering this question, we must keep in mind that real property taxation varies a great deal in Canada, not only in weight, but in form and incidence. Many municipalities, for example, levy taxes on commercial and industrial property which are determined in significantly different fashion from those which they levy on residential property. The common characteristic of all real property taxes is their basic relationship to the value of land — and in most cases of buildings and improvements — within the jurisdictions in question.

Since the depression years, this value has increased in three principal ways. Firstly, new buildings have been erected and improvements undertaken, some on land not previously built upon, some on land previously occupied by other buildings and improvements. Secondly, the value of many buildings and improvements, and of the land on which they are situated, has appreciated. (Some property has of course fallen in value, but there is good reason to believe that under the impact of economic growth and rising prices the plusses have substantially outweighed the minusses.) Finally, the value of some land not as yet built upon has undergone a speculative appreciation in anticipation of its being put to more profitable use.

In practice, real property taxes are levied against assessed values which in the great majority of cases are less than true market values. Often, the assessed value of a property is only a small fraction of the price which that property would command in the open market. (To further complicate matters, many municipalities, having established assessed values for property, tax only certain percentages of those values.)

The important question here is what has happened to the relationship between assessed values and market values over time. There is much to suggest that on the average, and over the War and post-war periods as a whole, the gap has widened. Some large-scale reassessments have been carried out recently, and there is an increasing tendency to base the

distribution of certain kinds of provincial-municipal grants, notably for educational purposes, on province-wide equalized assessments. But there are still municipalities where assessed values are based on the market values of 1945 or even earlier years.

In Table VI, changes in assessed values in seven provinces for which continuous statistical series are available are compared with changes in personal income in the same provinces. The table must be interpreted with great caution: not all the provincial assessment series are wholly comparable one with another, and there is reason to suppose that even if assessed values had increased proportionately as much as true market values since 1939, the percentage of increase would still have been below that shown by personal incomes. All the same, the difference in the two rates of increase is so striking as to create at least a suspicion that over the 1939-55 period as a whole, the disparity between total assessed values and total market values must have widened considerably.

Table VI

ASSESSMENT AND PERSONAL INCOME IN SEVEN PROVINCES (\$ millions)

Assessed values	N.S.	N.B.	Ont.	Man.	Sask.	Alta.	B.C.	Total seven provs.	Total excl. Sask.
1939...	185	170 ^a	2,960	441	1,051	490	379	5,675	4,625
1945...	194	275	3,109	452	850	586	420	5,885	5,035
1953...	333	403	5,044	680	964	1,018	771	9,214	8,249
1954...	355	418	6,099	707	987	1,148	842	10,557	9,569
1955...	389	435	6,567	770	1,013	1,237	1,044	11,456	10,442
Personal income									
1939...	163	111	1,766	249	274	262	379	3,204	2,930
1955...	650	462	7,906	973	1,022	1,322	2,006	14,341	13,319
% Increases 1939-55 ^b									
Assessed values	+111%	+155%	+122%	+ 75%	— 4%	+153%	+176%	+102%	+126%
Personal income	+299%	+316%	+348%	+291%	+273%	+405%	+430%	+348%	+355%

a 1938 figure.

b Percentages calculated on unrounded figures.

SOURCES: Reports of provincial departments of municipal affairs and Dominion Bureau of Statistics, *National Accounts — Income and Expenditure (annual)*. The statistics of assessment are described as follows: Nova Scotia, "total taxable assessment"; New Brunswick, "total assessed valuation" (cities, towns, villages, counties and local improvement districts); Ontario, "taxable assessment"; Manitoba, "total taxable assessment"; Saskatchewan, "taxable assessment"; Alberta, "assessment for municipal purposes"; British Columbia, "values actually taxed — municipal purposes".

The fundamental difficulty with the real property tax may be, not that it is inherently incapable of responding reasonably well to economic growth, but that to make it so respond is an awkward business, requiring no small amount of political courage. A progressive personal income tax,

from the point of view of the government levying it, responds swiftly and almost effortlessly to economic growth and rising prices, and it responds more than proportionately. The rates can be left where they are, and the rise in money incomes will do the rest. In the case of the real property tax, assessments or mill rates or both must be periodically increased to keep pace with that part of the rise in the total market value of real property which is not simply the result of new construction. A general reassessment can almost always be relied upon to produce a large volume of protest from taxpayers who feel that they are being treated unfairly or that the authorities are attempting some sinister kind of legerdemain. If on the other hand the basis of assessment is left unchanged and the mill rate is progressively raised, an impression is created of an ever-mounting relative load of taxation on real property. "Where will it end?", the cry goes up. A policy of fairly frequent reassessment has the advantage of making clearer the real facts of the situation. Perhaps if taxpayers become more used to reassessment than some of them have been, they will be more inclined to accept it as a normal and logical process.

When municipal officials complain of inflation, they deserve a sympathetic hearing, for their level of government is probably more painfully affected than any other by rises in the general level of prices. Their expenditures are quickly influenced, but their revenues can only increase commensurately if overt action is taken to that end.

There are some other criticisms which may be levelled at the real property tax. By the standard of ability to pay, it is none too satisfactory: the amount of real property held by a person or company has never been one of the more accurate measures of that person's or company's total wealth, and it is a less accurate measure today than it was 50 years ago, when automobiles, refrigerators and television sets had not yet shouldered housing into a smaller corner of the family budget.

By the standard of benefits received, the real property tax also leaves a good deal to be desired. The benefits accruing to property through the construction of local sewers, watermains, streets and sidewalks are plainly apparent. But when it comes to schools, and to arterial roads, both of which are today claiming a much larger share of municipal expenditure, the flow of benefit to property, though it still occurs to a degree, is less obvious and direct. Owners of abutting property understandably object to paying the full cost of a through street which is far more expensively constructed than it would need to be in order to fulfill the sole function of local access, and which is heavily used by vehicles from other municipalities. It may be noted that a very large proportion of the increase in provincial specific grants to municipalities has been in the fields of education and roads.

As against all this, the real property tax is extremely well adapted to administration within a small jurisdiction. Real property cannot be hidden, does not go away to Nassau for six months and can be shrewdly gauged as to value by local people in touch with local conditions.

Some observers of the fiscal scene seem prepared to accept the possibility that municipalities will grow steadily more dependent on transfers of one kind or another from higher levels of government. Others, disturbed at the prospect of municipalities becoming little more than spending arms of their provincial parents, are concerned to discover revenue sources other than real property which municipalities could use directly.

In the field of education, an increasing dependence on grants seems difficult to avoid. Education has long since become a matter of much more than local importance. The tendency today is toward the establishment by provincial governments of "foundation programmes" and systems of grants designed to ensure that no child in a province need be denied a satisfactory education merely because his or her local school district happens to be tax-poor.

Elsewhere in the spectrum of local government expenditure, it may yet be too early to conclude that only larger and more numerous grants and subsidies can meet the fiscal demands of the future. There appear to be some good possibilities both of improving the real property tax and of devising new and growth-responsive revenue sources.

A very substantial percentage of municipal expenditure today is caused by motor vehicles. It seems to us both logical and just that municipalities should be enabled to recover some considerable proportion of this expenditure from the owners and operators of motor vehicles. There are perhaps two ways in which this could be done: municipalities in a province could be permitted to impose motor vehicle taxes, preferably at some standard rate; or the province could earmark a stated proportion of its revenues from motor vehicle licence fees or gasoline taxes or both, and transfer this proportion to municipalities as of right.* In the latter case, the distribution amongst municipalities might be determined on the basis of vehicle registrations, or even better, possibly, on the basis of traffic counts. A formula might be devised which gave weight to several factors.

A municipal vehicle tax, or an assured proportion of provincial motor vehicle revenue, would have more "built-in" expansionary potential than the real property tax. As traffic increased, creating a need for more road and street expenditure, so would the revenue. From a province's point of view, the arrangement might prove in time to be simpler and less costly to administer than a multi-tier system of conditional grants.

* Under the Alberta Municipal Assistance Act, municipalities in that province receive each year 50 per cent of the provincial government's revenue from gasoline tax in the previous year.

Periodically, it is proposed that municipalities investigate the possibilities of the retail sales tax. In the Province of Quebec, this tax, collected by the province on behalf of those municipalities which choose to levy it, has become an important source of municipal revenue. In the Montreal and Quebec metropolitan areas, the proceeds are distributed amongst the various municipalities and school corporations on a per capita basis.

Sales taxes are often criticized for their regressive characteristics, although these may be mitigated by the exemption of foods and other basic necessities. A municipal sales tax, unless it is generally imposed, at uniform rates, is also subject to the criticism that it tends to drive retail business out of one municipality into another. Finally, there is the consideration that some provincial governments already occupy this field for their own purposes, while others may wish to hold it in reserve for the future.

What of the real property tax itself? Our proposal regarding motor vehicle taxation, if implemented, would remove some of the load from real property. A further unloading could well take place in respect of sewer and water services. Many Canadian municipalities now charge for water on a cost-of-service basis, with individual bills determined by meters. What the citizen pays is no longer a tax, but an economic price for a particular service. There seems no real reason why sewer service should not be similarly charged for, with the amount of service provided being determined by the amount of water consumption.

Hospitals and some social services might also be finally removed from the list of burdens on real property, and indeed on municipalities. The particular relevance of health and welfare services to real property has never been easy to defend, and the case for municipal administration of such services has weakened in the light of experience with provincial and federal programmes.

In sum, we would propose that the municipal real property tax be given rather less work to do. We would also propose that it be made payable in monthly instalments, rather than in an annual lump sum. (Many municipalities have already moved in this direction.)

Thus streamlined, the real property tax might prove to be an altogether more flexible and more efficient instrument in the hands of local governments. It would be easier to pay and easier to justify, particularly if it were founded on an assessment base which was kept reasonably up to date in relation to market values.

Municipal Taxation of Industry

In Chapter 15 we referred to the financial problem which arises when industry is unequally distributed between neighbouring municipalities. Most of the industry may be in one municipality while most of the residential

development which that industry has helped to bring about is in another. The first municipality may be comparatively well off; the second may have to struggle to keep up with its responsibilities.

It has been proposed to us that as a solution to this kind of difficulty, the taxation of industrial property should be undertaken by provincial governments, who would distribute the proceeds amongst municipalities on some acceptable basis.³

Such a remedy may eventually prove to be necessary, but we rather hope that it does not. It seems to us that the problem tends to occur in its most acute form in large metropolitan and urban areas. There is a double inequity: it is not just that some municipalities have more industry than others; it is that some municipalities experience more of the residential consequences of that industry than others, and that the two groups often do not coincide. If good progress is made toward the development of enlarged units of government in metropolitan and other major urban areas, much of the problem may disappear. If, on the other hand, progress in this direction is slow, then the alternative course may become unavoidable. Our unhappiness at such a prospect arises only partly from the potential threat to local autonomy. There would be danger, too, of the provincial assumption of industrial taxation being regarded as a cure-all, a complete solution to the metropolitan area problem. This it most emphatically would not be.

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